S
621.31
N7t
Vol. 7
DNRC

PLEASE RETURN

BOARD OF NATURAL RESOURCES
TRANSCRIPT OF PROCEEDINGS

VOLUME 7
Pages 1110 through 1264

May 29, 1975

STATE DOCUMENTS COLLECTION

AUG 16 1985

MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

SECTION 10

Heating Systems: Conventional and Solar (Monitoring)

TRANSCRIPT OF PROCEEDINGS
(con't)

Volume 7

Pages 1110 Through 1264

May 29, 1975

THURSDAY, MAY 29, 1975

The hearing reconvened at 9:00 A.M., on Thursday, May 29, 1975, in the Chambers of the Montana House of Representatives, State Capitol, Helena, Montana.

The Honorable Carl M. Davis, Hearings Examiner, presided over the proceedings.

APPEARANCES:

APPLICANTS

William M. Bellingham, Esq.
John L. Peterson, Esq.
John Ross, Esq.

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

Ted J. Doney, Esq.
Robert T. Cummins, Esq.
Arden E. Shenker, Esq.
William Sheridan

BOARD OF HEALTH AND DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

Steve Brown, Esq.

NORTHERN CHEYENNE TRIBE, INC.

Peter Michael Meloy, Esq.

NORTHERN PLAINS RESOURCE COUNCIL

Gregory H. Warner, Esq.

The following proceedings were had:

HEARINGS EXAMINER: Are counsel ready to proceed?

MR. SHENKER: We have a preliminary matter on discovery that should be put on the record.

HEARINGS EXAMINER: Is Northern Plains ready?

MR. WARNER: Northern Plains is ready, Mr. Davis.

MR. BROWN: Department and Board of Health are ready.

HEARINGS EXAMINER: Very well, you have a preliminary matter, Mr. Shenker?

MR. SHENKER: Yes, Mr. Davis. Yesterday, Mr. Ross supplied us with a copy of volume two of Mr. Labrie's deposition which I read last night. On page 207 of volume two of Mr. Labrie's deposition they undertook to supply us with an answer to a question that appears therein with respect to Interrogatory No. 46 in the first set of interrogatories. That has not yet been done.

HEARINGS EXAMINER: Very well, we will confer with Mr. Ross. Anything else?

MR. SHENKER: I think the record should show that we have not yet received the additional material that was discussed yesterday that was supposed to arrive yesterday. I assume it will come today. I would like the record to be informed.

HEARINGS EXAMINER: The record will so show. Very well, Mr. Bellingham, you may proceed with your direct examination of Mr. Hofacker.

CONTINUATION OF EXAMINATION OF ROGER HOFACKER

Direct, by Applicants

By Mr. Bellingham:

Q You are the same Mr. Hofacker that was testifying at the conclusion of testimony yesterday, are you not?

A Yes, sir.

Q Now, you have testified regarding load forecasts and I would

like to bring out from you at this time what your opinion is as to future forecast as far as the next few years are concerned.

A Do you mean as to our methods of forecasting?

Q No, as to whether or not you are going to have to increase or to reduce growth rate.

A Well, as I alluded to yesterday, in the immediate years--this year, next year and the year thereafter, it is our opinion that economic conditions would warrant our load growth being somewhat less than our trended extrapolation of our base load curve. Following that, we foresee from information available to us, that economic conditions should turn up, the price of copper may very well move up again as the demand increases, the increased use of electricity that might come about due to cost and availability of other sources of energy, so that we anticipate and plan that by 1980 our load will be back to that five point five percent compounded rate that we have experienced since 1952.

Q Now, you gave and you testified previously as to reasons as far as the future is concerned why loads are going to increase but to put it in the context of your testimony at this time and the periods that you referred to, what are some of the other examples of why you feel that loads are going to come back to the usual curve?

A Well, first off, the inquiries for increased amounts of power on existing customers as well as new customers we do not now have. We have several inquiries for power between now and 1982.

Q We'll get into those later. Other items regarding this that you mentioned previously?

A Well, there's the increased irrigation that we anticipate, particularly in the rural areas, increased use of electricity for housing, increased power requirements for sewage treatment, requirements for power for environmental equipment on industrial installations.

Q Shortage of petroleum products?

A Yes, sir.

Q Decreased use of gas and oil?

A That could very well lead to it, the increased use of electricity.

Q In recent months have changes been made in your forecast?

A Yes, they have.

Q I wonder if you could briefly touch on that?

A Well, we initially submitted to the Department a load forecast of last November. We updated it in February of this year. Some of the revisions, or the revisions in there -- one was that we had been notified in the interim by the Anaconda Company that the concentrator at its smelter in Anaconda was going to be taken off line this year, so we reduced the peak for 1975 -- twelve megawatts for that. We reduced our energy forecast by some five megawatts this year and twelve thereafter.

Q You said twelve megawatts. Does that refer to peak?

A That was peak and only about five megawatts of energy this year because it has run part of this year. Next year it will be all down, and it runs at a very high load factor so it is roughly twelve megawatts of peak and close thereto of energy.

The Hoerner-Waldorf load was revised. The total load didn't change but heretofore they have had roughly fifty percent of their load on an interruptable contract. They figure that they can no longer continue to operate with the possibility of that interruption so the seven and a half megawatts of peak that was interruptable is now made firm, making a total of fifteen megawatts of firm, and there's about six megawatts of energy that has become firm, making a total load for them now of twelve megawatts of firm. As I said, this did not change the total load but it did change the firm load requirements in that heretofore that interruptable had been included in our reserves and not in our firm load. We added in 1978 because we have a letter of firm commitment from AS&R of a requirement for an additional six megawatts for their environmental equipment which they will have on line in 1978.

Q You said AS&R? This means --

A American Smelting and Refining Company, East Helena.

Q And that applies to the East Helena plant?

A Yes, sir, and those economic conditions that I mentioned before for the next three years.

(Brief recess called until outside noise subsided.)

Q Let us turn now to recent developments with Anaconda. When I refer to Anaconda, I am of course referring to the Anaconda Company here in Butte and other places in the state. What are some of the more recent developments there that you have not already testified to?

A Well, as a result of Mr. Place's announcement at Fairmont, west of Butte, some six weeks, two months ago, about certain reduc-

tions in Butte, we have had a couple of meetings with the Anaconda Company but to date they have stated that they are not firmed up in their plans to specifically inform us as to the load revisions. In our own shop, based on that announcement, we anticipate that there might be a drop, a reduction in maybe twenty megawatts. We have not so reflected that in our load forecast as yet. We are waiting for firm details from Anaconda Company. We have been informed by them in the past, and this has been confirmed in recent weeks, that within the next few years there will undoubtedly be a second arbiter plant with eighteen to twenty megawatts of installed requirements, and perhaps a second electric furnace of some thirty-seven megawatts. But those have not been added to our forecast, either.

Q You are presently awaiting further developments from Anaconda?

A We are.

Q Now, as of this particular time -- can you give us an approximation of what percent of your total load is attributable to the Anaconda Company?

A Looking at December, 1974, and the load as it existed for that month, and adding thereto the sum of thirteen megawatts that the arbiter plant will probably utilize when it gets to full speed, it's about fifteen percent of our peak load that was forecast for that month and about nineteen percent of our energy load. Now, in past years the percentage has been considerably higher because our own loads were so much less when you go back ten, fifteen, twenty years. But those are the percentages as of last December.

Q Now, you had mentioned sprinklers as a form of irrigation that you expect increases in. Do you have any statistics prepared by anybody in the Montana Power organization regarding this particular facet?

A We have, and they are based on the U. S. Bureau of Reclamation's estimate of well in excess of eight hundred thousand economically irrigable acres not now under irrigation in Montana, and based upon the growth we have experienced in recent years in sprinkler irrigation, we have made some estimates as to what this could be by 1981, and it could mean an additional --

MR. SHENKER: Wait, wait. The question, Mr. Hearings Examiner, is one that actually could have been answered yes or no. I think we are at the point where the volunteering of the answer should stop and be directed by a further question. I won't ask that any part of the answer thus far be stricken.

HEARINGS EXAMINER: Could you ask another question pertaining to the sprinkler equipment?

MR. BELLINGHAM: Well, we are going to elicit the same information, whether it is a yes or no answer and continued to another or not, but I think perhaps we should have the record read back so we'll know for sure what we need to go into once again.

(Reporter read back question and the portion of the answer: "We have, and they are based on the Bureau --"

MR. BELLINGHAM: All right, you can stop there.

Q At that point, then, your answer was yes to my question?

A Yes, sir.

Q All right, what are the results of the study that you referred to?

MR. SHENKER: Just a moment. I know that Mr. Hofacker is going to have to refer to the notes he has before him in order to give us the results of those, and I think it would be only fair for us to be able to look at the same notes he is reading from, if it is a statistical compilation, so we'll know what the figures are at the same time. If it's not going to be marked as an exhibit then certainly we are entitled to the furnishing of that data to us so we know we're looking at the same information.

HEARINGS EXAMINER: Let me ask a question of Mr. Hofacker. Is this information you are going to take from notes in front of you?

MR. HOFACKER: Yes, sir. The lower portion of that page has to do with the irrigation.

(Mr. Shenker looks at notes handed to him by Witness.)

MR. SHENKER: I would like to have the document marked as an exhibit so we will have it available for identification and cross examination.

MR. WARNER: Could we look at it, too?

(Document examined by Mr. Warner and Mr. Meloy.)

Q Once again, what were the results of the study?

HEARINGS EXAMINER: Just a moment, please. Let the record show that I have marked the paper as DNR Proposed

Exhibit No. 3.

(DNR PROPOSED EXHIBIT NO. 3 MARKED FOR IDENTIFICATION.)

Q. Go ahead and answer.

A Based on the data provided by the U. S. Bureau of Reclamation on the potential economically irrigable acres not now under irrigation of well in excess of eight hundred thousand acres and an average pumping head of some two hundred fifty megawatts, again estimated by them, our marketing department--the industrial development part of it--has forecast the growth of pumping load on our system and the REA's served by the Montana Power Company's, as growing approximately a hundred and seventeen megawatts between now and 1981. This is made up of about seventy-five megawatts on the Montana Power Company's system and forty-two megawatts on the REA system that we provide the power to. Our present load as of 1974 was thirty-seven megawatts on the Montana Power Company's system and twelve megawatts on those REA's we provide power for. The increased amount of irrigation will occur, of course, during the two and a half months summer season and would represent an average energy requirement, increased requirement, of some thirteen megawatts on the Montana Power Company's system and an additional seven on those REA's we provide power for, making a total of twenty megawatts of additional energy.

Q That energy you are referring to is sprinkler type irrigation for a five year period, is that right?

A Yes, sir. This is the load per year at the end of five years.

Q All right, now, you have previously testified regarding an inquiry relative to additional demand upon your system. Let us

go first of all into the existing customers' inquiries, that is, customers Montana Power presently has, and inquiries from them relative to new demands. Do you have any statistical knowledge relative to this?

A I do. Yes, sir.

MR. SHENKER: May we see it?

HEARINGS EXAMINER: You may. It will be from notes. Does everybody want to take a look at it.

(Off the record while counsel look at notes.)

HEARINGS EXAMINER: You have examined the notes he has referred to. Does anyone want to interpose any objection before he testifies?

MR. SHENKER: No, but I would like to have it marked DNR Exhibit No. 4, if I might.

HEARINGS EXAMINER: It will be so marked as DNR Exhibit No. 4.

(DNR PROPOSED EXHIBIT NO. 4 MARKED FOR IDENTIFICATION.)

Q Would you answer the question, please, if you remember it?

(Reporter read back previous question and answer.)

Q Would you state those, please?

A First off, Continental Oil Company has asked for an additional five point seven megawatts between now and 1978. Their existing load is ten thousand five hundred kilowatts or ten point five megawatts. Western Energy's existing load is about one point eight megawatts, and in anticipation of their coal contracts they anticipate they will require an additional twenty-two megawatts by 1982. Big Sky out of Bozeman that we now serve has an existing load of about eight thousand kilowatts

or eight megawatts and they plan increased requirements amounting to twenty-two megawatts through 1978. Morrison-Knudson, Westmoreland Mine in Sautter Creek has a present load of four point six megawatts and anticipating adding fifteen megawatts in the 1978-79 period. Malmstrom Air Force Base in Great Falls have an existing load of seven megawatts and anticipate approximately four megawatts increase. Hoerner-Waldorf Corporation in the vicinity of Missoula has an existing load of twenty-five megawatts and have potential additions, per their estimates, of twenty megawatts in the next few years. That is all the existing customers that I am aware of. If there are others, I am not aware of them.

Q When you state a certain number of megawatts are you referring to a time period?

A Yes, this is between now and '82 for those I just enumerated.

Q Yes, I realize that, and some of them were '78.

A Yes, sir.

Q Is that the load per year they will be --

A That is what their load would be -- that's the amount that would be added to their existing load by that time.

Q Per year?

A Yes, sir. These are all annual loads that I am talking about.

Q Now, you have just completed existing customers, what about new customers? Have you had any inquiries from them regarding requests for loads -- parties or individuals who are presently not customers?

A Yes, sir, we have had an inquiry from Stauffer Chemical Company for forty to forty-five megawatts in 1978 and another forty to

forty-five megawatts in 1981. The Ethyl Corporation has inquired as to the availability of power in the amount of fifty megawatts and, as they say in their letter, in the not too distant future. I believe that's -- other than this potential sprinkler irrigation I was talking about -- takes care of the major portion of the inquiries at this time.

Q Would the American Smelting and Refining come under this?

A Yes, but as I mentioned before, we have already put that into our load forecast because it is a firm commitment. These others are classified as potential but are not in our load forecast at this time.

Q Do you have any total figure as to the particular loads that have been requested?

A The total potential of those that I enumerated by 1972 --

MR. SHENKER: Excuse me, are we talking about new customers or old customers or both?

WITNESS: Both.

A The total of all those I enumerated, both new and old, is two hundred seventy-five to two hundred eighty-five megawatts. The existing total load of those customers we now have that I enumerated is roughly fifty-seven megawatts.

Q I think you indicated that these particular figures have not been included in your load forecast.

A I did, yes, sir.

Q Now, you have testified about various developments, questions that have been asked and so forth, and the effect that they will have on your system. Are these estimates the results of any particular departments in Montana Power in the analysis

used regarding them?

A Yes, sir, we confer jointly with our electrical operating department, our marketing department. We confer as to alternate fuel prices with our gas department, and of course with our top management when we assess these factors we include in our load forecast studies.

Q I now hand you what has been marked as Applicants' Exhibit No. 9 and ask you what that purports to be.

A That is a graphic representation of Montana Power Company's load projection analysis for the period 1952 through 1985.

Q Was it prepared under your supervision?

A It was.

Q And is it true and accurate?

A Yes, sir.

MR. BELLINGHAM: We offer in evidence Applicants' Exhibit No. 9.

MR. SHENKER: May I voir dire the witness?

HEARINGS EXAMINER: You may.

Voir Dire by Mr. Shenker:

Q Yesterday, Mr. Hofacker, we had the introduction of Exhibits No. 8 and 8-A, which were the statistical compilation of your loads and resources and graphic representation of those.

A Yes, sir.

Q Now, was Exhibit 9 taken from Exhibits 8 and 8-A, or did you need to put something else into Exhibit 9 in order to prepare it?

A This analysis here is of our total energy loads and we have to

include the requirements, also the losses, to supply those total energy loads.

Q All I am trying to get at in order to shorten it up, because Mr. Bellingham didn't ask you where all this stuff came from that is on the exhibit, is whether the previous exhibits that came in on your testimony yesterday have the data from which you prepared Exhibit 9. If there is new data, I am going to have to object to the introduction of the exhibit and we'll find out where the data came from.

A No, it's the same data, sir.

Q It's from the earlier exhibits?

A Yes, sir, the same data that was used for the earlier exhibits.

Q O.K. As I understand it, Exhibit 9 refers to energy and therefore that will be coordinated with Exhibit 8 and the graphic representation, 8-A. It's the same data -- it just appears in the projected form over the years?

A Yes, sir.

MR. SHENKER: On that representation, I have no objection to Exhibit No. 9.

HEARINGS EXAMINER: Any other objections?

(No response)

HEARINGS EXAMINER: Very well, Exhibit No. 9 will be admitted without objections.

(Continuation of Direct Examination of Mr. Hofacker by Mr. Bellingham:

Q Now, turning to Exhibit No. 9, at the bottom of the exhibit you have various years, is that correct?

A Yes, sir.

Q And those years are from what period --

A 1952 through 1985.

Q On the left hand side you have some figures there saying average megawatts, is that right?

A Yes.

Q And what does that mean?

A That's the average megawatts of energy as you project from the curve over to that to determine what the magnitude is.

Q Now, you have two lines. One line projecting across the graph is representative of what?

A Well, the top line is the total load and the portion that is solid from 1952 to 1974 is the historical loads that we serve. The dash thereon is our projection. The bottom line is what we term our base load, historical from 1952 to 1974 and projected thereafter until 1985.

Q Then the bottom line is the base load, is that correct?

A Yes, sir.

Q What is left out of that?

A We start with our total load and we remove those block loads that are not trendable. At the current time this is essentially the Anaconda Company. There are some other flat loads of minor amounts that were taken out because they are flat. Now, what's left after reducing those total loads is a trendable load that we call our base load, and the dots on that lower curve, or in the vicinity of that lower curve, represent the actual data resulting from removing those block loads from the total loads.

Q Now, you mentioned the black dots appearing near the bottom line, and I notice the exhibit has the explanation of actual

data relative to those particular black dots.

A Yes, sir.

Q And what you have done then, as far as the line is concerned in connection with the black dots, is what?

A The line is a least squares fit to that actual data, which is a statistical, analytical method.

Q All right, let's go into this bottom line a little first. Up to the year 1974 you have increase noted in each year, is that right?

A Yes, sir.

Q And this is based, of course, on your history?

A Yes, sir.

Q Now, following that particular point, the year 1974, the line flattens out. I am talking now about the lower line. What is the reason for that?

A This is a result of our analysis of the economic conditions in '75, '76, '77 and thereafter, and our judgment, made jointly with our marketing people, management people, and operational people, that our growth would not be as we have experienced in the early portion of those years--in other words, 1975, 1976 and 1977. Looking at past history, it appeared to us that the economic conditions should upturn, and as I said earlier this morning, we feel that the loads will at least be back to our projection using the base data from '52 to '74.

Q Now, then, in the bottom right hand corner of this particular Exhibit No. 9, you have base load 1952 hyphen 1974, growth rate of five point six percent. What does that mean?

A That is the compound rate at which the load grew each year --

five point six percent from the period 1972 to 1974, the base load.

Q What about the next line?

A That's the 1952 to '71 period at a compound growth rate of five point five percent, and that is the growth rate we have used in our current load forecast.

Q Now, then, the upper line, if you will refer to it. That is, as I understand, as you have previously testified, the total load which includes the base load plus the block load, is that right?

A Right.

Q Now, then, you have various peaks and valleys in that particular month, do you not, over the years?

A Yes, sir.

Q Starting with the first major one, which is back in 1954, I believe, there is a down curve there, is there not?

A Yes, sir.

Q Well, starting with that, would you explain, if you can, the reasons for these peaks and valleys?

A Well, the major factor creating these peaks and valleys, of course, is the variability of the Anaconda Company's load in its operations. We have a month by month history of the Anaconda load going back some thirty years or more, and I extracted these notations from this history. There was a nine weeks strike in 1954 that went from August 8th to October 15th. Again in 1957 the Anaconda Company started reducing their underground and as I recall started working mainly in their open pit operation. In 1969 there was a six months strike

from August of 1959 to February of 1960.

Q Now, I think you said 1969 to begin with.

A Oh, 1959 -- excuse me, it was 1959 -- '59 was the year. Then there was a period of time recovering from that strike and, again, although it doesn't indicate much on the graph, in 1962 they had another two months strike which tends to flatten the growth rate a bit.

Q You might mention what happens during a strike period as far as your load is concerned.

A Well, of course, all the mining operations shut down except critical pumping and so forth. A large number of the workers seek employment elsewhere. Business in Butte drops -- in Butte and Anaconda and Great Falls. It drops because of lack of income. It is rather a depressing occurrence.

Q All right, would you go back --

A The next major change is in 1967 when there was an eight and a half months strike from July 15, 1967, to March 30, 1968. Following that strike and coming back on -- it always takes a while to get everything going again -- and there was a concerted effort to reduce their peaks and thus reduce their payments to us for some two or three years, and that tended to keep the peak from getting as high as had been expected. In 1972, they again had a -- or in 1971, they again had a two and a half months strike from July 1st to September 22nd. In 1972 the zinc load at Great Falls Anaconda was suspended and has not been started up since, and that was a seventy-two megawatt firm load with interruptable up as high as -- making a gross total of some hundred megawatts, and I think that pretty well

answers that. There was some loads that changed during that period of time but none as graphic as those with the Anaconda Company.

Q What about the Milwaukee Railroad?

A Milwaukee discontinued their electrified operation in 1974, I believe, or was it 1973? Anyway, within the last two years. And that was about twelve megawatts.

Q Now, this particular exhibit refers to energy, am I correct on that?

A Yes, sir.

Q What about a similar chart based upon peak?

A It would look almost just exactly like this with the exception the magnitude of numbers would be higher.

Q Turning next to a different subject entirely, I think you previously testified regarding your 10 year load forecast and the reasons for them. I would like you to go into the subject, if you will briefly, the amount of time that is necessary to get on line a thermal resource in the state of Montana today.

A Well, as has been stated by George O'Connor and others, we talked about nine to ten years and this is made up of about two years for site location, the meteoroligical studies related thereto, preparation of an application for permission to construct it, and economic studies in the interim here on this determination. Then, under the current revised siting law we can anticipate at least two and a half years for obtaining of a siting permit, or construction permit, I should say, and then about five years to engineer and to construct the plant, assuming there are no delays in obtaining equipment and so forth.

I believe that adds up to about nine and half years.

Q Do you anticipate any change in Montana Power's method of load forecasting in the future?

A I don't believe there will be any major change in the basic philosophy. I would anticipate we will become somewhat more sophisticated through the utilization of computers to enable us to look at more variables, testing the sensitivity of economic conditions, load growth -- or population growth and the like. But, it's still going to require common sense and judgment because the data you put into your computer and the manner in which you massage it certainly has a positive or a negative effect on the adequacy of the forecast. We would hope and plan that our forecasts be as accurate as possible.

MR. SHENKER: At this point, Mr. Davis, may I repeat my request for the information on the computer programs about which the witness is testifying, once again?

HEARINGS EXAMINER: Yes, sir. We will confer at the first recess.

Q It has been termed, as far as computers are concerned, garbage in, garbage out. Is that right?

A Yes, sir.

Q What does that mean?

A The accuracy of the results depends on the accuracy of the data put in.

Q Would you say that today -- talking about the present time -- that there have arisen perhaps more variables than in the past insofar as load forecasting is concerned?

A Yes, sir.

Q What are some of those?

A Well, for instance, the long lead time, thereby requiring or looking up to ten years where not many years ago we could make our decisions only five years away. Availability of alternative fuel sources seems to be coming more critical than it used to be. The pricing of all sources of energy appears to be in a state of flux. There may well be some effects of conservation, short or long term. I think that pretty well takes care of it. Another thing, of course, our population growths are changing. I don't know if we have reached population zero but it's changing. The groups of people moving through our population have an effect on our loads. The twenty to thirty-five group seems to have the greatest because they are the ones establishing homes and businesses and so forth, and we have to look at the period of time that hits the market just like your schools do as far as population in the schools. I think the long lead time is really the critical one.

Q Now, have you over the years become somewhat familiar with load forecasting done in other areas by other companies?

A Yes, sir, and through reading Edison Electric Institute publications, belonging to a committee of the Edison Electric Institute in this area, coordination activities with other utilities; this trended extrapolation method has been one, rather predominate in usage throughout the industry.

Q Now, as far as the basic data such as area and population densities and so forth, do you find a difference generally in the Montana Power's problem as it confronts you regarding forecasting and similar type problems regarding other companys' load

forcasting in other areas?

A Primarily the geography we cover with a small population. The distances, the lack of heavily concentrated metropolitan areas, the rural -- predominance of rural activities in our load area are different than those, for instance, with the Cleveland Electric Company that has a service area of maybe two hundred square miles and practically all of the metropolitan area.

Q What about weather patterns?

A Because of the wide width of our service area we can have several kinds of weather at the same time that are quite variable.

Q Now, then, do you have an opinion as to whether or not it is better to underestimate or overestimate the future requirements of Montana Power?

A I do.

Q What is it?

A I'll preface it with, I'd like to think we could be right on but I know that's impossible. However, if I had a choice I would prefer to be slightly high because then you can do something about it if your load did not materialize as rapidly. You can defer or delay or slow down the construction to bring the installation on more in line with the load as it was going to exist. It might even result in reduced costs if escalation continues as it has in recent years by having a cheaper fixed cost for the balance of the life of that plant. Whereas, if you underestimate it would be next to impossible to speed up the construction to any degree in order to meet the load when

it arrives and thereby exposes you to the possibility of low curtailments of one type or another.

Q When you say low curtailments, what do you mean?

A Inability to take care of some of our customers' requirements--what's been referred to at times as brown-outs--and when it got extreme, black-out in some instances. And not coming on when the load materializes in time reduces your reserve capability to adequately provide the reliable service.

Q I will now hand you what has been marked as Applicants' Exhibit No. 10 and ask you what that purports to be.

A That is a graphic representation of the Montana Power Company's firm load comparison of the actual versus the estimate for the period 1966 through 1974 and the first two months of 1975.

Q In other words, it is a comparison between your load forecasting and the actual results, is that correct?

A Yes, sir.

Q Was it prepared under your supervision?

A Yes, sir.

Q And as far as you know, is it true and accurate?

A Yes, sir.

MR. BELLINGHAM: We now offer into evidence Applicants' Exhibit No. 10.

MR. SHENKER: Well, spring has come to an end. We do have a problem with Exhibit No. 10. The actual data, I am prepared to accept Mr. Hofacker's representation that the graphic simply follows the actual data that has previously been furnished. But, with respect to the estimates, that's the problem because we have in the record

the testimony of this witness and the prior witness that the load forecasting, which would be the estimating, is something that goes on in an on-going basis. Therefore, we can't tell from Exhibit No. 10 what estimates we're talking about. For example, are we talking in the 1974 estimated line about an estimate that was made in 1973, 1972, 1971, 1970, 1969, 1968, 1967? We have no idea as to when the particular estimates were made, by whom, and what they took into consideration. Therefore, what we have here are two squiggly lines which obviously would hopefully, on the part of the Applicants, be as close together as they possibly could be. We just have no idea when the individual estimates were made and therefore the exhibit is totally meaningless because of the absence of the indication of what particular estimates we're dealing with. Moreover, because of the manner in which the lines are drawn in the exhibit, it would be grossly misleading unless we have that information with respect to a particular estimate, a particular series of identified estimates. With the actual, of course, presumably you would not have that problem because the actual doesn't vary. It's taken from actual records, I'm willing to presume. But with the estimate, even though I would be willing to presume it is taken from actual estimates, I don't know which estimates. Therefore, we would object to the introduction of Exhibit No. 10 because of the grossly misleading nature of the exhibit, the fact that it is speculative, and does not identify

the bases on which the exhibit is prepared.

HEARINGS EXAMINER: Mr. Warner, do you want to bring forth an objection?

MR. WARNER: We would join in the objection because it is obviously based on new and different information previously testified to and has no relation to charts previously introduced and absolutely no foundation as to that information and therefore should not be admitted.

HEARINGS EXAMINER: Mr. Meloy.

MR. MELOY: We will also join in those objections, Mr. Hearings Examiner. Furthermore, my copy of the exhibit -- and perhaps my copy is just unusual in the respect that I can't tell the difference between the actual and the estimate because in some cases they cross, intersect, and it is impossible from looking at this thing to determine which is which.

HEARINGS EXAMINER: Very well, any member of the audience or the public want to interpose any objections? (No response) Very well, objection denied and the exhibit will be admitted and you may cross examine (inaudible)--

MR. SHENKER: May we have a continuing objection to all questions with respect to Exhibit 10?

HEARINGS EXAMINER: You may. You may all have continuing objections to Exhibit 10, the information developed.

Q Now, then, turning to Applicants' Exhibit 10, let us first address ourselves to the two bottom lines. Now, one of those

lines is red and the other one is black, is it not?

A Yes, sir.

Q And what does the red line indicate?

A That is the estimated amount. The black is the actual.

Q In other words, the red line is the estimated load, estimated by Montana Power --

A Yes, sir.

Q -- over the years?

A Yes, sir.

Q Is that true to the upper part of the exhibit, also?

A It is.

Q The red line up there indicates the same?

A Yes.

Q Now, turning to the bottom section, the black line represents what?

A The actual load as it occurred in energy.

Q Is that also true of the upper lines as far as the actual load is concerned?

A Yes, sir, for peak.

Q Now, the bottom two lines address themselves to energy, is that correct?

A Yes, sir.

Q And the upper two lines address themselves to peak?

A Yes, sir.

Q Now, along the bottom of the exhibit you have a series of numbers. What do those represent?

A Those are years between each of the vertical lines. The year 1966, for instance, all twelve months are between those two

lines.

Q And on the left hand portion of the exhibit there appear a series of numbers, as well as on the right hand side, and what do those represent?

A Below the mark that has peak megawatts on the top and energy megawatts on the bottom, the lower numbers indicate the megawatts of energy that you use in referring to the lower two lines. Above that mark are the megawatts of peak for reference to the upper two lines.

Q Now, I think that you have testified that the red is the estimated portion as far as the particular load factors are concerned, forecast by Montana Power, is that correct?

A Yes, sir.

Q Now, then, will you tell us the data upon which you arrived at the particular configuration of the red line upon the exhibit.

MR. SHENKER: I should like to object to that question, in addition to the grounds previously stated, for the further grounds, first, that it is obvious, patent, that this exhibit is intended to be the most self-serving of exhibits that one could offer on behalf of the Applicants and therefore has the additional prejudicial effect in addition to being misleading. Secondly, that the exhibit is dated March 3, 1975, with the initials of Rob Stuart in the energy planning office. The exhibit, therefore, was prepared prior to the commencement of any depositions taken in this case. At no time during the pendancy of the depositions that were taken in this case

was that exhibit made available to any of the parties for discovery, and therefore, when the exhibit was handed to us approximately three weeks ago, if my recollection serves, the parties had no opportunity whatsoever to cross examine this witness or any other witness on the basis of this exhibit, or any data to which the estimated line would refer.

HEARINGS EXAMINER: Very well, the objection will be noted and overruled. You may proceed, Mr. Bellingham.

Q Do you recall the question?

A I'm not certain that I do at the moment.

Q Well, perhaps I might restate it. It might be easier unless the reporter can read it back.

(Reporter read back question.)

A Starting in 1966 with the estimate, the current estimate of that time, running through into 1970, the red line represents the 1966 estimate for both peak and energy. In 1970-71, we revised our forecasting somewhat. At that time, looking at month by month actual data for our estimates -- we had looked at them before but rounded out the data -- this was more detailed, so that the estimate from the 1970-71 period extended into 1972 and they made a new estimate, and the balance of the estimates are based on the 1972 load forecast.

Q I notice, for example, when you analyze this particular exhibit, that you have a series of upswings in the curves, both energy as well as peak, insofar as the red lines are concerned, generally falling upon the vertical black lines representing the difference in one year to the next. Do you notice that?

A Yes, sir.

Q What is the reason for that?

A The increased loads during the winter months versus the summer months creates the peaks and the valleys.

Q I see. I don't think you have previously testified as to the reason why your loads are larger in the winter than in the summer.

A Weather, primarily, and shorter days with the increased lighting and the heating. We have a peak in some areas in the summer, particularly Billings, and you can note some peaks on the actual and in the forecast following 1971 where there is a hump in the July-August period when there is irrigation combined with air conditioning -- creates a peak during that summer season.

Q Let us go to the first part of the exhibit, that is the left hand side. I notice that there is a discrepancy in the lines. What I mean by that is, your apparent forecast is not as close to the actual load as in other cases. Do you know what I mean?

A Yes, sir.

Q Where do you find that discrepancy the greatest, coming from the left side of the exhibit?

A Well, it would appear to be the winter of 1967-68.

Q And what is the reason for that discrepancy? Do you know?

A Well, again, I'd say this was based on the 1966 estimate and in the winter of 1967-68 we had a lengthy strike in the Anaconda Company. This, combined with the dieselizing of the B.A.& P. Railroad between Butte and Anaconda, we realized a

reduction of nine megawatts due to that. Also, during that period of time there was about twenty megawatts of REA load that we lost, or Bonneville Power started serving and I believe the Bureau may have served one of the REA loads, so that was not in our total load any more. I think that's essentially the reason for that discrepancy.

Q Now, that discrepancy affects the chart as far as energy is concerned, as well as peak?

A Yes, sir.

Q Now, will you continue, moving over to the right hand side.

A Well, the 1968-69 period had the same loads that had not been anticipated being lost, plus the additional six megawatts at the Glasgow Air Base when they shut that down; another five plus megawatts of the Idaho Mines' load that we sold to the Washington Water Power Company, and during that period of time, the Anaconda Company, as I stated previously, was working very strenuously on increasing their load factor or in other words reducing their peaks, and that had a definite effect. Again in 1970, we lost ten megawatts of the U. S. Irrigation Service load. That's U. S. Indian Irrigation Service up in the vicinity of Polson. The effect of all of these added up to that approximately one hundred megawatt peak variance.

Q Would you continue?

A As I said, in 1970-71 --

MR. SHENKER: Excuse me, Mr. Hofacker. May the record show that the exhibit as flashed on the screen has material only from the year 1970 on, so it occupies about half of Exhibit No. 10. And I don't see any problem with

that except if someone in the future would want to look at what was flashed on the screen, they would be misled into believing that that was the whole of the exhibit, since what is being flashed on the screen, I take it not to be an official exhibit, then it is not a concern for anyone except those of us who are sitting in the chambers at the moment, looking on the screen.

HEARINGS EXAMINER: Does it show the whole exhibit now?

MR. SHENKER: No, it's only half the exhibit.

HEARINGS EXAMINER: Very well, the record will show that. I can't see it from here.

MR. BELLINGHAM: I might mention that the screen projection is for illustrative purposes only. All of the Board members will be furnished, of course, with copies of the actual exhibit as it is introduced, and the transparancies that have been utilized and the images projected on the screen are not going to be presented to the Board.

HEARINGS EXAMINER: Very well, the record will show that the transparancies will not go to the Board.

MR. SHENKER: There is something, Your Honor, I would like to have the record show. The transparancy now on the screen has additional information which does not appear on Exhibit No. 10 by which the actual load is sharply reduced on peak by what appears to be something in the nature of approximately seventy-five to eighty megawatts, up to the most current reading on the screen, over what appears on Exhibit 10. And with respect to

energy, a sharp reduction or turn-down in 1975 appears to be approximately fifty megawatts -- that's with respect to the black line, the actual data, in both cases. With respect to the red line of estimation for peak, the turn-down that appears on Exhibit No. 10 is continued on for approximately another seventy-five megawatts on the screen but not on the exhibit. And the sharp reduction on energy estimation goes down by approximately ninety-five to a hundred megawatts for 1975 beyond what appears on Exhibit 10.

HEARINGS EXAMINER: Very well, you may use the transparancies on cross examination.

MR. SHENKER: Thank you.

HEARINGS EXAMINER: Mr. Meloy.

MR. MELOY: Mr. Davis, in the exhibit that is submitted to the Board, may I request that the exhibit be made more legible than exhibits which counsel were provided for the parties? I don't know whether yours is the same as mine but the red lines intertwine with the black lines and all of a sudden they become red lines and it is difficult to tell what is happening.

MR. BELLINGHAM: Well, I am not certain as to the difference in lines. I have no problem reading the ones I have looked at, and if there is any discrepancy problem there, we will make certain that the Board members' exhibits are clear.

HEARINGS EXAMINER: The record will show that if there is any inability to clarify it to the Board.

Q Would you continue with your testimony, Mr. Hofacker?

HEARINGS EXAMINER: Would this be a good time to take a short recess?

MR. BELLINGHAM: That will be fine, Mr. Davis.

(Hearing recessed at 10:30 A.M.)

HEARING RECONVENED AT 10:50 A.M. FOLLOWING BRIEF RECESS.

HEARINGS EXAMINER: You may proceed, Mr. Bellingham.

MR. BELLINGHAM: Sir, I understood that perhaps at this time you were going into some of the matters regarding instruments furnished to the opposition.

HEARINGS EXAMINER: Let's do it right now. Mr. Ross, you were here earlier this morning, and then you were gone and Mr. Shenker inquired about some of the matters we talked of yesterday. How has that developed? Will you let us know, please?

MR. ROSS: We are prepared at this time to respond to the document request discussed previously in this hearing. The first request, we have a summary of small individual service contracts that the Montana Power Company has with its customers. We have a summary of those small contracts and some samples of those contracts to turn over, and secondly, in response to their request for computer program information of the Montana Power Company, we also now turn over some computer program information, which includes computer program for load forecasting, a catalog showing the capacity of our computer program, and also, some samples of a computer run.

HEARINGS EXAMINER: I assume, Mr. Shenker, you will respond at some subsequent time when you've had a chance to examine these?

MR. SHENKER: Right.

MR. ROSS: Thirdly, we have a pamphlet that Mr. Shenker requested that was referred to in the letter from

the Bonneville Power Administration. We have given two of those documents previously, and here's the third document referred to in that letter.

HEARINGS EXAMINER: That is the letter from --

MR. ROSS: That is the pamphlet that was referred to in a letter from the Bonneville Power Administration to the Montana Power Company.

MR. SHENKER: From Mr. Gautreaux?

MR. ROSS: Yes. Fourth, we have the questionnaire that was sent to the Edison Electric Institute which the Montana Power Company has completed covering Colstrip units 1 and 2. Next, Mr. Shenker requested letters from Mr. Labrie, of the Montana Power Company, to Mr. H. J. White, and we have those two letters, one dated April 9, 170, and the second dated December 21, 1971. Next you requested some tax computations done by Mr. Gilder of the Montana Power Company during his deposition, and you requested the most recent calculations done by Mr. Gilder, and here are those calculations.

HEARINGS EXAMINER: Are those calculations of March 3rd?

MR. SHENKER: It says April 20, 1975 on them.

HEARINGS EXAMINER: So that would be the most recent?

MR. SHENKER: Yes.

MR. ROSS: And next you requested any information we might have on diseconomies of scale. I conferred with Mr. Labrie and the only study we have on economies of scale and diseconomies of scale is a study referred to as Study

No. 4 and our site selection studies, and these studies have been handed to you previously.

MR. SHENKER: When Mr. Labrie's deposition was taken, there was an exhibit marked in his deposition, I think it was Exhibit E, which was a graph, in which he plotted the economies of scale. He was going to check to see if he had others, and he thought he probably did not.

MR. ROSS: That exhibit is missing from the original deposition, the one you're referring to.

MR. SHENKER: No, the one I just mentioned to Mr. Labrie's deposition is not missing. That's a single-page graph, and I think it's Exhibit E. Yes, it's Exhibit E to Mr. Labrie's deposition. I inquired if he had other studies of this kind done on the economies and diseconomies of scale. This one was dated December of 1970, and I understand that there are no others.

MR. ROSS: Correct. During the testimony of Mr. O'Connor, a request was made of him regarding the price that was paid for the Colstrip property originally, and I inform you at this time that the Montana Power Company paid $1,500,000.00 for the Colstrip property in 1959.

MR. SHENKER: What was that, John?

MR. ROSS: $1,500,000.00. Also during the testimony of Mr. O'Connor, a request was made for Western Energy Company's financial statements, and I hand you now copies of those financial statements for the years 1972 - 1974.

MR. SHENKER: I think Mr. Graybill asked for those.

Is there just one copy, John?

MR. ROSS: Yes, and we would like those back. Those have to be in our central records file in Butte. Also during the testimony of Mr. O'Connor, a request was made for any minutes or notes of his meeting with the Crow and Cheyenne Indians, and we have examined our files and find no such minutes or notes. I believe that completes the production requests that were made previously.

HEARINGS EXAMINER: Has Volume 2 of the full deposition been received?

MR. SHENKER: Yes.

HEARINGS EXAMINER: I have in my notes that on page 115 of Volume 1 of Mr. Labrie's deposition, there is a reference to information Mr. Gilder was preparing.

MR. ROSS: That was the latest tax computations, which I just handed to Mr. Shenker.

HEARINGS EXAMINER: There was some information requested by Mr. Shenker concerning Mr. Hofacker's deposition How are we on that?

MR. ROSS: Part of that information requested in Mr. Hofacker's deposition referred to the small service contracts with the Montana Power Company, and I handed Mr. Shenker this morning a summary of those contracts and some samples, and then, another request referring to Mr. Hofacker's deposition was the computer program information, which I have also handed to him.

HEARINGS EXAMINER: I have some note here on studies on the hauling of coal, Exhibits 12 and 13.

MR. SHENKER: Yes, Mr. Peterson has confirmed for me that Exhibits 12 and 13 are the studies that Mr. Hofacker was referring to in his deposition.

HEARINGS EXAMINER: Then I have a note on page 34, scheduling for Colstrip units taken on May 15 in San Francisco.

MR. SHENKER: Yes, that simply means that I'm going to have to reserve cross-examination on Mr. Hofacker until we receive those depositions.

MR. BELLINGHAM: As to that particular subject, is that it?

MR. SHENKER: Right.

HEARINGS EXAMINER: Another one on page 73 -- there's a reference made to Exhibit C. Well, if it's nothing you had in mind, maybe we can proceed. Thank you, Mr. Ross. Would you proceed, Mr. Bellingham?

CONTINUATION OF EXAMINATION OF ROGER A. HOFACKER

Direct by Applicants (cont.)

By Mr. Bellingham:

Q Mr. Hofacker, I think you earlier testified regarding apparent discrepancies as far as the Applicants' Exhibit No. 10 is concerned between the red and the black lines, and I think your testimony had brought you up to around the year 1970. Do you recall where you left off?

A Yes, sir.

Q And now will you please go forward?

A Well, in 1970 a new estimate was made where we refined our

calculations somewhat by projecting on the basis of each month's actual peaking and each month's actual energy, and that estimate extends from July of '70 through July of 1972. During that period of time, in 1972, the Anaconda Company shut down their zinc operations in Great Falls, as I mentioned previously, and this prompted the revision of our estimate to reflect that drop, in load. That estimate then continued until December of 1973. During 1973, the Milwaukee Railroad shut down its electrified railroad and that reduction of twelve megawatts was reflected in the revised estimate following December 1973. Thereafter there were some adjustments upward in our estimates in '74 to reflect some increased requests for load that amounted to about 25 megawatts net increase, and around February of 1974, when we revised the estimates, and again, in October of '74, when another twenty megawatts was added to the estimate, and that is reflected by the red lines on this chart. Going on explaining the discrepancies between the red and the actual, the zinc I referred to in 1972 accounted for that. The discrepancies for the winter seasons of '73/4 and '74/5 were accounted for in both years to some degree by considerably warmer than usual temperatures when we normally experience our peak loads, that is, December and January. Added to that was the Christmas tree lighting that was not in existence to any great extent in '73 and in 1974, there were some eighteen megawatts of Anaconda load that did not come on as soon as they had anticipated, but it is coming on this year. I believe that covers remarks on discrepancies that I have considered or thought of.

Q Did you mention the winter of '74 - 75?

A I did.

Q The warm weather?

A The warm weather and the Anaconda load. Particularly, the arbiter loads have been estimated by Anaconda Company to be 25 megawatts, and there was something less than ten at that time.

Q Now, there's been a comment or two directed at the projection of this particular exhibit as it appears on the screen, that it does not contain a few of the earlier years that have actually appeared in the exhibits. What is the reason for that?

A Just for ease. This was just an illustration, and not an exhibit, and for size. If we tried to compress it to one size, your various ups and downs would be much less discerning.

Q It was also brought out that the slide that appears on the screen is projected out a month or two more than the actual exhibit, is that correct?

A Yes, sir.

Q What is the reason for that?

A The data at the time of the preparation of the exhibit was not available, but our history was, so we have had two more months pass since that exhibit was prepared.

Q And I assume that the slide, as projected on the screen, was prepared subsequent to the preparation?

A Yes, sir, again, for illustrative purposes, in the room here.

Q Is there anything else about Exhibit 10 that you would like to bring out that we have not at this time?

A Not to my knowledge, sir.

Q I now hand you what has been marked as Applicants' Exhibit No. 11, and ask you what that purports to be?

A That is a tabulation of the kilowatt hour sales by Montana Power Company for the years 1964 through 1974, broken down to six classifications of load, and the totals of those loads.

Q What is the purpose of this particular exhibit?

A To indicate the makeup of our load, industrial, residential, commercial, and so forth.

Q Was it prepared under your supervision?

A Yes, sir.

Q And is it true and accurate?

A Yes, sir.

MR. BELLINGHAM: I now offer in evidence Applicants' Exhibit No. 11.

MR. SHENKER: I am trying to find my copy. Perhaps that is one to which I have no objection.

MR. BELLINGHAM: Perhaps if you find it, you will have one.

MR. SHENKER: I have no objection to that after a voir dire question, if I might.

HEARINGS EXAMINER: Yes, sir.

MR. SHENKER: Mr. Hofacker, Exhibit No. 11, categorization, in the various compartments, residential, commercial, industrial, agricultural, et cetera, is the way you actually keep your records in the course of your business, is it not?

WITNESS: Yes, sir.

MR. SHENKER: No further objection.

HEARINGS EXAMINER: Very well, Exhibit No. 11 will be admitted into evidence without objection.

Q Now, then, you have a series of years across the top of Exhibit No. 11, do you not?

A Yes, sir.

Q And that indicates the kilowatt sales for those particular years that Montana Power has made to various classes of customers?

A Yes, sir.

Q Now, then, I see at the top, immediately after the words, Montana Power, in parantheses, KWH by one thousand. What do you mean by that?

A Thousands of kilowatt hours.

Q All right, then, for example, in the year of 1964, as far as the class designed as "Others," the figure 411,465 appears, is that right?

A Yes, sir.

Q What is the actual figure?

A 411,465,000 kilowatt hours.

Q And you abbreviate this in the fashion that you have for what reason?

A Space.

Q That's what is mean by that KWH by one thousand at the top?

A Yes, sir.

Q All right, now, let's go through the various classes that you have on the left-hand side of Applicants' Exhibit No. 11. The first class I see is "Others." What is meant by that?

A Those customers such as the REA's, governmental agencies, our street lighting, yard lights, and that type of load. The U. S. Irrigation Service is an example of one of the government agencies.

Q In other words, it is a category that is not covered by any of the other classifications?

A Yes, sir.

Q As far as the others are concerned, I don't see any reason to go any further. You did indicate what the 1964 figure was. What was the 1974 figure?

A The total you're talking about?

Q Right.

A Five billion --

Q No, no, other.

A $453, 034,000.00.

Q Now, then, the residential classification includes what?

A The residential and rural areas, exclusive, I believe, of the pumping loads for irrigation, homes and farms.

Q And that is increased in 1964 from what figure?

A The 1964 was 632,466,000 kilowatt hours, growing to 1,043,592,000 kilowatt hours.

Q In 1974?

A 1974, yes, sir.

Q Now, then, as far as the next classification, where commercial is concerned, what is included therein?

A Your retail stores, groceries, clothing, et cetera, your signs and your commercial establishments, the retailing, essentially -- that area -- commercial operation.

Q All right, would you please give us the figures that are designated there for the years 1964 to 1974?

A 1964 is 486,192,000 kilowatt hours, and in 1974, it grew to 943,729,000 kilowatt hours.

Q The next classification is what?

A Other industrial.

Q What does that include?

A It's industrial other than the Anaconda load, and that includes your lumbering business, your small mining, your fertilizer plants, your fabrication industries, your petroleum industries, and the like.

Q Would you give us an example?

A Hoerner - Waldorf, Continental Oil Company.

Q And that has grown from what figure in 1964 to the year 1974?

A 580,683,000 kilowatt hours in 1964 and growing to 1,243,326,000 kilowatt hours in 1974.

Q Now, the next designation is the Anaconda Company. Why do you include it by itself?

A Because it's such a major segment of our load.

Q And that shows a decrease, does it not?

A It does, sir.

Q And what are those figures?

A It was 1,254,713,000 kilowatt hours in 1964 and it went down to 949,546,000 kilowatt hours in 1974.

Q Now, the next item that you have designated there is what?

A The system losses that are incurred moving the power to these loads on this table.

Q What is the designation there as far as figures are concerned?

A In 1964, our system losses amounted to 472,089,000 kilowatt hours, and in 1974, they amounted to 622,773,000 kilowatt hours.

Q Now, then you have a total energy load designated, and that has increased between the two extreme years, 1964 and 1974, by what number?

A By about 400,000,000 kilowatt hours, or the exact numbers are 3,838,608,000 kilowatt hours in 1964, growing to 5,256,000,000 kilowatt hours in 1974.

Q Have you yourself analyzed the various classes and broken them down insofar as percentages are concerned, applicable to the industrial, residential and commercial loads?

A It has been done at my direction, yes, sir.

Q And what figures do you come up with?

A Well, for example, I have two years --

Q No, I'm talking about percentages. What percentage of your total -- and I'm referring now to Exhibit No. 11?

A Well, in 1974, I have a percentage that is representative of the other years. The industrial, including the railroad, is about 50% -- industrial and Anaconda, with the railroad.

MR. SHENKER: That would be the fourth and fifth lines?

WITNESS: Yes, sir.

MR. SHENKER: That's 50%?

WITNESS: Roughly 50% in 1974 of our total loads.

Q What about commercial?

A Commercial in 1974 was about 22%, slightly under 22%, and that would be the994,729.

Q And what about residential?

A It was about 24%. Now, these percentages are of the load, not including the losses, because the losses apply to all of the loads.

Q That adds up to approximately 96%. What is the other 4%?

A Government, municipal, interdepartmental, and so forth.

Q As well as your system losses, too, I suppose?

A No, no, the system losses are not there. This is actual sales and percentage of sales.

Q I will now hand you what has been marked as Applicants' Exhibit 11-A and ask you what that purports to be?

A This is a graphic representation of our kilowatt hour sales -- when I say "our," I mean the Montana Power Company's kilowatt hour sales -- portraying those numbers that were shown on Exhibit 11, accurately portraying those numbers shown on Exhibit 11.

Q This is based upon Exhibit No. 11, is it not?

A Yes, sir.

Q Was it prepared under your supervision?

A Yes, sir.

Q And is it true and correct?

A Yes, sir.

MR. BELLINGHAM: We now offer into evidence Applicants' Exhibit No. 11-A.

MR. SHENKER: I have a problem with two references on Exhibit No. 11-A. The third line down, has going through it in parentheses the reference, "Percent Growth Rate, 1964-1974," which does not appear on Exhibit 11,

and the first line says "Total Energy Load" -- I found out what "Total Energy Load" is on Exhibit 11 -- but the one I don't see on Exhibit 11 is the "Percent Growth Rate."

HEARINGS EXAMINER: I think that is the figure written down below, 7.9, perhaps.

MR. SHENKER: I don't have a "Percent Growth Rate" from Exhibit No. 11. I don't know where that comes in.

WITNESS: We have added to the graphic portrayal of the data on Exhibit No. 11 some growth percentages. These are in addition to the loads of Exhibit 11 as portrayed by the sloping lines, and they're growths from 1964 to 1974 for that particular portion of our load.

MR. SHENKER: There is some new material on Exhibit No. 11-A? I assume it's simply a percentage statement of what appears on the lines graphically, but perhaps I'd better voir dire the witness about that.

CONTINUATION OF EXAMINATION OF ROGER A. HOFACKER

Voir Dire, by Department of Natural Resources and Conservation

By Mr. Shenker

A Yes, sir, it portrays the numerical growth in a percentage.

Q The first percentage figure is on other industrial less Anaconda Company, and that's a 7.9% growth rate when you run from the left-hand side of the exhibit, on billions of kilowatt hours, and that's about 1.55 up to 2.45 billions of kilowatt hours between 1964 and 1974?

A What it portrays is the growth of the difference between the

line under "Industrial" and the line over "Industrial," that is, the 1.56 up to the 2.25. That is the portion of the load in 1964 that was other industrial. Taking that and comparing it to the differential in 1974 for "other industrial" and running from approximately 2.4 to 3.7, the growth rate is on those two increments, if I made that clear.

Q I think I understand you. So the record will be clear, then what we're saying on Exhibit 11-A, I take it, is that the "Other Industrial" less the Anaconda Company is represented by the difference between 1.6 and 2.25 billion kilowatt hours in 1964?

A Yes, sir.

Q Growing to the difference between 2.45 and 3.7 billion kilowatt hours in 1974, and that on an annual basis, the growth rate between '64 and '74 for that change is 7.9%?

A Compounded.

Q Then the same would be true for the explanation of the differences as they appear to grow larger on the right side, which is the left side, at 6.9%, 5.1% and 1.0% respectively for commercial, residential and others?

A Yes, sir.

MR. SHENKER: I have no objection to Exhibit 11-A.

HEARINGS EXAMINERS: Very well, it will be admitted.

MR. BELLINGHAM: Thank you, Mr. Shenker. That leaves me very little room for questioning.

CONTINUED EXAMINATION OF ROGER A. HOFACKER

Direct, by Applicants (cont.)

By Mr. Bellingham

Q Now, Exhibit 11-A, you have a series of years at the bottom of the exhibit, do you not?

A Yes, sir, 1964 through 1974.

Q And over on the left-hand side, you have the designation, "Billions of Kilowatt Hours," is that correct?

A Yes, sir.

Q What is the function of this particular exhibit?

A To demonstrate graphically the makeup of our energy sales for this period of time.

Q And this is based, for the most part, upon Exhibit No. 11?

A Yes, sir.

Q Other than the percentages?

A Yes, sir.

Q Well, let's go ahead. Will you start explaining, please?

A Well, the first line, of course, is "Others," and it has grown on a compounded basis of 1% per year, and that, as I previously explained, includes our street lighting, government municipal, REA's, et cetera. Our Residential, which is the next increment there, grew at the rate of 5.1% compounded per year. Our Commercial, the next increment, grew at 6.9% compounded per year. The "Other Industrial" grew at 7.9% compounded, and that, as noted on there, is less the Anaconda Company. It does not include the Anaconda Company. The next increment up represents sales to the Anaconda Company, and then, on the very top, are the system losses that were enumerated on Exhibit 11 that were incurred providing this energy to those customers, and that information is gleaned from our

records as to the amount of purchases and generation during those periods of time necessary to carry these metered loads and that's what the sales are, the metered portion.

Q Did you mention total energy sales?

A The very top line? I did not. That's the total energy load. That's what we must generate or buy in order to carry all the loads below it.

Q And then the next line is "System Losses," is that correct?

A Yes, sir.

Q Is there anything else about this particular exhibit that you would like to explain?

A I made a quick calculation for the "Other Industrial." If we had left the BA&P Railroad and the Milwaukee Railroad out that are no longer electrified, that growth rate comes to about 9.2% compounded per year between 1964 and 1974.

Q All right, we'll turn now to another subject. Do you have statistics relative to the average number of customers based upon the various categories?

A Yes, sir, I do.

Q I think Mr. O'Connor testified from memory as to a part of this, but let me ask you, if I may at this time, Exhibits 11 and 12 -- 11-A, rather -- are based upon the total kilowatt sales, isn't that right?

A Yes, sir.

Q Now, I would like to ask you the average number of customers in these various classifications. Do you have that based on the years 1973 and 1974?

A I do.

MR. SHENKER: May we see it, please?

HEARINGS EXAMINER: Yes.

MR. SHENKER: May we have that marked DNR Exhibit No. 5?

DEPARTMENT OF NATURAL RESOURCES PROPOSED EXHIBIT NO. 5 MARKED FOR IDENTIFICATION.

Q I'd now like to ask you, going back to the question, as far as electrical sales are concerned by the Montana Power, how many residential customers did you have during the year 1973?

A 160,758.

Q How many in 1974?

A 165,560.

Q And percentage-wise, what is involved?

A Of our total customers, this represented 85.7%.

Q In what year?

A 1974.

Q And you're talking about numbers now, not kilowatts?

A That's right, numbers of customers.

Q All right, commercial customers in 1973?

A 22,783, in 1973 and 23,436 in 1974, representing in '74 12.1% of our total customers.

Q Now, then, the next classification?

A Industrial, including the one railroad, 2,802 in 1973, 3,010 customers in 1974, representing in 1974 1.6% of our total number of customers.

Q What railroad?

A The Milwaukee.

Q The next?

A The government and municipal, 909 customers in 1973, 941 customers in 1974, representing half a percent of our total customers in 1974.

Q Now you have a total?

A The total in 1973 was 187,506 customers and in 1974, 193,205 customers.

Q Then you have another column, "Other Utilities for Resale."

A Yes, sir.

Q What is the figure on that?

A There are 53 customers in 1973 and 54 in 1974.

Q And the next line is designated what?

A Total Average Customers -- 187,559 in the year of 1973, and 193,259 in the year of 1974.

Q And the next line states what?

A It says, "All electric customers included above," and that is intended to mean those whose total energy source is electricity, whether it's a total electric house, or total electric cafe, and so forth, and there were 2,156 of that type of customers in 1973, 2,807 in 1974, representing 1.4% of our total customers in 1974.

Q I now hand you what has been marked as Applicants' Exhibit No. 12 and ask you what that purports to be?

A This is an economic analysis of the relative costs of moving coal from Colstrip to Hot Springs, Montana, as compared to moving an equivalent amount of energy from Colstrip to Hot Springs via electric transmission system.

Q And does this particular exhibit include the analysis upon

which the final figures were based?

A It does, in some detail.

Q Following the analysis, you have set forth in this particular exhibit the costs of these two options as totaled over a certain number of years, have you not?

A Thirty-seven years.

Q You have prepared the approximate figures involved in moving this amount of particular energy by the two methods insofar as the total cost is concerned?

A Yes, sir.

Q And you have also figured out what the difference would be in moving it by the two different methods, is that correct?

A Yes, sir.

Q And are your conclusions found in this particular exhibit?

A They are.

Q Was this exhibit prepared under your supervision?

A It was.

Q Is it true and correct, insofar as you know?

A Yes, sir.

MR. BELLINGHAM: At this time we are offering into evidence Exhibit No. 12.

MR. SHENKER: There is a great deal of information in Exhibit No. 12 that has absolutely no foundation in this record whatsoever, and it will take me some time to voir dire the witness, I think, to establish those facts, but I'm prepared to start.

HEARINGS EXAMINER: Very well, you may voir dire, on this exhibit.

CONTINUATION OF EXAMINATION OF ROGER A. HOFACKER

Voir Dire, by Department of Natural Resources

By Mr. Shenker

Q Looking at the first page of Applicants' Proposed Exhibit No. 12, Mr. Hofacker, the fourth paragraph says "Coal freight is escalated at 3%."

A Yes, sir, per year.

Q How did you get that figure?

A We determined that it would be a conservative estimate based on the reports of the American Railroad Association of the increase in freight rates over the past twenty years of about 7% a year, the experience we have had moving coal from Colstrip to Billings, Montana over the past six years. Those freight rates have increased 4.8% per year.

Q So the figure you got was derived from figures available from the American Railroad Association?

A Yes, sir, and their survey of rates and how they escalated.

Q Was it Mr. Stuart who got those figures from the railroads?

A I think it was Mr. Davenport.

Q In any event, it was not you?

A No.

Q The next paragraph refers to 230 KV transmission required if the 500 KV system is not built and that's been added to the cost of a rail alternative. Who made the determination of what 230 KV transmission would be required and where?

A The Engineering Department did, and several people were involved, based upon studies, both on computers and otherwise.

Q Do those appear in the remainder of this exhibit?

A They do.

Q Can you show me where those are now?

A Page 4, second group.

Q That refers to the Colstrip-Broadview 230 KV double circuit line and terminals, correct?

A Yes, sir.

Q That line is already being constructed, is it not?

A Yes, sir.

Q The Billings-Anaconda 230 KV line for 212 miles and terminals -- has an application been made for that line?

A No, sir.

Q Where, on this paper, is the backup data for why you would need 212 miles and what the cost of such a line would be? I see the single figure, but I don't see the basis on which you arrived at the figure.

A I don't know -- I believe it's further up here -- something about costs of 230 KV -- I do not see the detailed breakdown per mile in the backup data.

Q Would the same thing be true with respect to the next line on page 4, the Anaconda-Hot Springs 230 KV line, 150 miles and terminals?

A Yes, sir.

Q No backup data for that in this document?

A Not that I see.

Q Okay, let's turn back to page 1, the paragraph beginning with the costs of the two options totaled over 37 years, and then three columns for rail transmission and difference. Will the figures on each of those columns appear in subsequent pages of

this document?

A Yes, sir, I believe looking at the last two tables of the document --

Q With respect to the first column under "Rail," you would expect to arrive at that from the sixth page table?

A Yes, sir.

Q And with respect to the second column, from the fifth page table?

A Yes, sir.

Q We'll get to those in turn. Let's turn to the second page. The first column is Property Tax. What is that property tax on?

A What page are you on, sir?

Q Page 2. Do we not have copies of the same exhibit?

A I thought we did. Oh, yes, I was looking too far down the page.

Q Page 2, the top of the page, "Expenses under variables and assumptions," the first one is "Property Tax"?

A Yes, sir.

Q Now, what's that property tax on?

A That's on the transmission lines as in each of the conditions, and the substations that are involved in each of the transmission networks.

Q How did you determine 1.65% of the original cost of the transmission line must be used for property taxes?

A Our Tax Department determined that for us.

Q Who, in the Tax Department?

A We received the information through Mr. Charles Gilder.

Q And that is not in this document, either, is it?

A No, other than that the 1.65 came from him, based on our experience.

Q His computations are not in this document?

A No, sir.

Q And the substations are also 1.25% of the original cost for property tax. Did that also come from Mr. Gilder?

A It did, sir.

Q And those figures are not in this document, either?

A No, sir, other than as right here.

Q That was a conclusion you reached?

A Yes, sir.

Q Similarly, the escalation of 4% is a conclusion that Mr. Gilder reached?

A Jointly with us, yes, sir.

Q The basis on which that figure was derived, I assume, is your experience of property taxes and rates which you would have in your files?

A I would presume that this is where they came from, yes.

Q And that's not in this document, either?

A No, sir.

Q The next item is "Operation and Maintenance, Administrative and General," 0.8% of original cost. How did you get that figure?

A From the Rate Department.

Q That's the Rate Department of the Montana Power Company?

A Yes, sir.

Q And their basis for arriving at that figure is also not in

this document?

A No, sir.

Q The next item is entitled "Transmission Line Losses" under Expenses, and once again, are you telling us that the variables and assumptions used in all conditions are explained for transmission line losses here on the second page?

A I believe there is sufficient detail to determine the value we put for those losses.

Q The first item here is capacity charge based on gas turbines. Why do you use a reference to gas turbines?

A Because that would be the cheapest source of peaking to take care of the peak loss.

Q Why is that under transmission line losses?

A Because when you move energy over a transmission line, you have some losses. You put in more at one end than you get out the other.

Q So to make up for those losses, you have to put in something?

A Yes, sir, put in something.

Q And the capital cost of a hundred dollars for the gas turbine, that's per kilowatt, is that right?

A Yes, sir.

Q That's something you derived from your experience and from which department?

A The Engineering Department.

Q And the basis for which you arrived at one hundred dollars per kilowatt is not in this document, either?

A No, sir, but it's common published data available to trade magazines, et cetera.

Q And your escalation rate through 1979 is also based upon your experience and not in this document?

A That's right.

Q And the figure, $130 per kilowatt, I assume that's what happens when you escalate a hundred dollars for six years?

A Yes, sir.

Q And then the "Fixed O and M and A and G" are your operation and maintenance, accounting and general?

A Administrative and general.

Q Those are also figures based on your records and not shown in this document as the basis for the derivation?

A No, those came from FPC numbers.

Q FPC numbers, and those are not in this document.

A No, because we had not had enough experience with gas turbines.

Q Then there's an ad valorem figure under capacity charged under transmission line losses of 2.1% as of 1975. Where did that come from?

A That was based on our records of taxes and the fact that we estimated the gas turbine would probably be in the vicinity of a metropolitan area and taking the taxes of the Billings area, that gave us approximately the amount.

Q And that came from Mr. Gilder, also?

A Yes, sir.

Q And the basis for that is not in this document either?

A No, sir.

Q Then the incremental transmission line loss for coal, based on a 700-megawatt unit is listed at $6.00 per ton, escalated at 4%. Did that come from the Western Energy Company?

A Yes, sir.

Q And that is not in this document, either, as the basis for derivation?

A No, sir.

Q And the 3.6 mils at 10,300 Btu's per kilowatt hour, before you get to the multiplication factors, came from where?

A That's just what these numbers would result at using the heat rate of the 700-megawatt units and the heat rate of the coal. It's just derivation.

Q Of the six dollars per ton?

A Yes, sir.

Q And the variable O and M, A and G, was derived from the same figures, again without basis in this document?

A Yes, sir.

Q Then the assumption goes on under transmission line losses and the variables go on to state that for peak losses you expect 63.5 megawatts on an 1800-megawatt flow between Colstrip and Broadview, is that right?

A Yes, sir.

Q Where did you get the 1800-megawatt flow?

A That's the maximum possible movement of power over that section of line.

Q Then you have the figure 1400 megawatts from Broadview to Hot Springs. Would your answer be the same, that's the maximum possible movement of power over that line?

A That would be -- yes, sir.

Q It says "Corona losses included." How much?

A I don't believe that number shows in here.

Q And for the rail shipment alternative, it says, "A peak loss of 12 megawatts has been assigned to the 230 KV double circuit line between Colstrip and Broadview." Where did that come from?

A That was a computed loss for that section of our network.

Q Who computed that?

A Richard Davenport.

Q And the basis for that computation is not in this document?

A No, sir.

Q And other "Energy Losses," you have a loss factor at 80% load factor. Is that right?

A Yes, sir.

Q How did you get it?

A This is estimating that the maximum flows would not be occurring at all times and the annual load factor would probably about 80% of the maximum.

Q Turning to page 3, you have rail freight at 9.5 mils per ton mile. Is that something you derived from railroad figures, also?

A Indirectly, yes, sir.

Q What do you mean, indirectly?

A We had attempted to get freight rates and had been unsuccessful to a degree, but in the DNR's Environmental Analysis, they so stated that this was a reasonable figure, based on their correspondence with the Burlington Northern.

Q You accepted a figure that appeared in the DNR's Environmental Impact Statement?

A Because we could not get one otherwise at that time.

Q Do you have another one now?

A No, sir.

Q Escalation at 3% -- did you also take that from the DNR Environmental Impact Statement?

A No, sir.

Q How did you get that figure?

A As I stated on the first page, we estimated it to be conservative.

Q You got that the same way as the one on the first page?

A It's the same figure.

Q Then, coal requirement is stated at 5,875,300 tons annually for two 700-megawatt units similar to 3 and 4?

A Yes, sir.

Q How did you get the calculation of 5,875,300 tons?

A Using the heat rate of 700-megawatt units and an 85% load factor on the plant.

Q You have to do something more than that. You have to find out how much coal you need per something or other, don't you?

A Well, the heat rate of the unit and the heat rate of the coal, the Btu content in the coal, and then you calculate, and that's what it comes out in tonnages of our Colstrip coal.

Q Somebody had to do some computations based upon the heat rate of the units and the heat rate of your coal and come up with some figures in order to reach the 5,875,300 ton figure?

A Yes, sir.

Q And that's how it was done?

A Yes, sir.

Q Then you have under coal requirement the decrease of tons on

an annual basis based upon a decrease in the load factor, and I take it that is based upon the Environmental Impact Statement of the Department of Natural Resources and Conservation?

A Yes, sir.

Q And you have averaged the freight costs through the years of decrease so that the total cost of the rail alternative is flat between changes in load factors?

A Yes, sir.

Q The next item is "Capital Cost." These are further variables and assumptions, I assume?

A Yes, sir.

Q The first item under capital costs is financing, where you take 15% return on your equity and 8% rate of payment on bonds, with a 50% debt ratio?

A Yes, sir.

Q And a composite tax of 51.51%?

A That's a composite of the federal and state tax.

Q Who made those determinations?

A Within our own company.

Q Who made the determination that you would have 15% return on your equity?

A This is a management policy decision.

Q Well, who?

A Our policy committee.

Q Mr. McElwain and some others?

A Mr. McElwain and others.

Q The basis for that policy decision is not in this document,

is it?

A No, sir.

Q And 8% payment on bonds, that is based upon what?

A It was the approximate going rate at the time we made this study.

Q Somebody gave you that figure?

A Based on the bonds that we had been selling.

Q 50% debt ratio -- who gave you that figure?

A We took that 50% debt ratio because our debt ratio sort of varies as you go through the years, and 50% is a good average number in the utility business to use in economic studies. That's the reason we used it.

Q 51.5% composite tax -- that was done by Mr. Gilder's department?

A I believe so.

Q The computation for that doesn't appear, either, does it?

A No.

Q Who made the determination for the depreciation schedule that follows next under "Financing" under "Capital Costs"?

A The Rate Department. The next column is based on the IRS Publication No. 534.

Q That is as to depreciation?

A The tax life, yes.

Q Then they had to do some computing and when they knew what the depreciable life was, they had to know what portion of gas was depreciable and how you would depreciate it over the years and on what basis?

A Yes, sir.

Q There are a number of accounting bases upon which you can take depreciation?

A Yes, sir.

Q Somebody in the Tax Department made those calculations?

A We calculated the depreciation schedule. This is a simple formula.

Q What schedule did you use?

A Double decline in balance.

Q Double decline in balance?

A Yes, sir.

Q For each of the years it indicates on the tax life of those assets?

A Yes, sir.

Q Did you make a determination as to how much of each asset was depreciable?

A Yes, it had to be, because they're all different lifes.

Q Well, for example, you take 500 KV transmission --

A Yes, sir.

Q You had to get a cost figure before you could depreciate it?

A Yes, sir.

Q Where did you get the cost figure?

A Of the 500 KV transmission?

Q For example, yes.

A It's based on our current known costs for the double circuit 230 KV line from Colstrip to Broadview, which is under construction.

Q So you made a calculation based upon what you thought the cost of that transmission line would be?

A Yes, sir, based upon bids we have received for material, construction, et cetera.

Q Did you assume that the entire amount of your calculation would result in a depreciable asset?

A Yes, sir.

Q The basis of your computation, calculated from bids that had been received on the 230-KV line that's under construction, does not appear in this document?

A I'm not sure. The double circuit transmission line is shown at the top of page 4 -- I mean the 500 KV construction is shown at the top of page 4.

Q The 500 KV switchyards and the 230 KV transmission and the 230 KV substations and the gas turbines are not indicated in this document?

A I'm not sure I understand what you're saying.

Q The basis on which the figures were derived for the depreciation of those last four items as shown on page 3, does not appear in this document?

A The calculations do not appear, but the basis appears here.

Q The basis is only the book life and tax life that appears here?

A Plus the -- well, okay.

Q Isn't that right?

A All right.

Q Then, on page 4, you have the breakout for the 500 KV transmission. Isn't that a reference to the figure that you depreciated as the first item of the last five on the bottom of page 3? On the bottom of page 3, there's a reference to the

500 KV transmission depreciation?

A Yes, sir.

Q Turn to the top of page 4. Is the 500 KV transmission set out there the figure that was depreciated in accordance with the schedule that appeared on double declining balance from the book life and tax life as shown on page 3?

A Yes, sir.

Q Now, the cost per mile of $199,216.00 for the 500 KV transmission was derived in what manner?

A Again, starting with the quotations for bids on materials on the double circuit 230-KV line, which has the capability of being converted to a 500 KV line --

Q Who supplied that figure for you? CT?

A Probably George Nesgoes, but I'm not certain, but one of the main people of CT.

Q Probably Chet Taylor?

A It could very well have been Gene Taylor.

Q You said Gene Taylor. Do you mean Chet Taylor?

A Chet Taylor, yes.

Q And the basis on which they computed 199,216 per mile for the transmission lines does not appear in this document?

A No, sir.

Q The Colstrip to Broadview 230 KV double circuit and terminals for 115 miles, that's the part of the line that's under construction now?

A Yes, sir.

Q Those figures were taken from the showing that you had to make to the Department for that particular line to be constructed,

is that right?

A They're the latest figures. I don't know whether they'll differ from the ones presented before or not, to be honest with you.

Q In any event, you do not have the basis for their computation in this document?

A No, sir.

Q Then, there's a conversion of 230-KV double circuit lines and that's what might happen in some time in the future if Colstrip 3 and 4 were built, and you wanted 500 Kv equipment transmission for Colstrip up to Broadview, right?

A Yes, sir.

Q Those figures also came from CT Main?

A They did.

Q And the next line, 500 Kv switchyard, those also came from CT Main?

A Yes, sir.

Q Both of those last items have as their basis something that does not appear in this document?

A Yes, sir.

Q There's an asterisk for the totals on the top of page 4. That explains the matter in the middle of that page, does it not?

A Right.

Q Including the fact that interest during construction is included?

A Yes, sir.

HEARINGS EXAMINER: Mr. Shenker, sir, do you have

quite a bit more voir dire?

MR. SHENKER: I would think another ten minutes or more, Mr. Hearings Examiner.

HEARINGS EXAMINER: I know it's a little after twelve, and I think we'll recess until 1:30.

MR. SHENKER: That's fine.

(HEARING ADJOURNED AT 12:00 NOON).

(Following the lunch recess, the hearing reconvened at 1:30 P.M. on May 29, 1975)

HEARINGS EXAMINER: We will proceed with Mr. Shenker's voir-dire examination of Mr. Hofacker on Applicant's proposed Exhibit #12.

Continuation of Voir-Dire of Mr. Roger Hofacker by Department of Natural Resources and Conservation

By Mr. Shenker

Q Mr. Hofacker, you have a copy of the exhibit before you?

A I do.

Q We are on page 4, the middle of the page, where there is an item "extension of the study". Now, it says, "This study does not extend to Spokane". What does that mean?

A The economics of the alternatives was not calculated to Spokane when we got to Hot Springs.

Q That means if coal were hauled by rail from Colstrip, Montana to Hot Springs, Montana, that's the cost factor at which you stopped?

A That's right, sir.

Q O.K. Item #2 under "extension of the study" is the statement that PP&L and Montana Power would have the purchase wheeling rights for 560 megawatts from Spokane back to Hot Springs. How do you get that figure?

A 40% of 1400.

Q That assumes, therefore, that all 1400 megawatts from Colstrip 3 and 4 would be delivered to Montana Power and Pacific Power and Light Company for their use in Montana, is that right?

A Yes, sir.

Q Of course, the basis for that is not in this document, is it?

A No, sir.

Q Page 5 is the Table, Mr. Hofacker that runs from 1980 to the year 2016 lists annual revenue requirements, is that right?

A Yes, sir.

Q Now this is just the mathematics done from the information which we have gone over in the earlier pages, is it not?

A The results of the calculations, yes.

Q The depreciation figures are calculated -- that is the second column on the fifth page -- those are figures that are calculations from which you have previously described?

A Yes, sir.

Q The bond interest and equity return is applying the figures that appeared on the earlier pages to some cost, which we referred to previously with respect to this Exhibit?

A Yes, sir.

Q And similarly, the taxes in the next two columns are also computations based upon some figures that we referred to in earlier pages?

A Right.

Q That would be true, also, of operation and maintenance?

A Yes, sir.

Q Line losses with those?

A Those are the loses for which costs were assigned based on data in the forepart of the report.

Q Where is the reference to the line losses? Is that the note factor that you were talking about?

A No, sir. Transmission line losses on page 2.

Q Capacity charges and increments on those?

A Yes, sir.

Q Then the total revenue required, is that the addition of the columns that precede it?

A Yes, sir.

Q With nothing else?

A No, sir.

Q And the present worth column is simply a mathematical computation based upon the total revenue requirement, as of what time?

A Back to the year 1980. I --

Q That can't be.

A No, it has to be the year 1979 -- let me look at the starter here -- at the front of the -- the end of '79. Yes, sir.

Q You said you were talking about what the present worth is, 41,245,000 dollars at the end of the year 1980?

A Yes.

Q And the answer to that is 36,991,000 dollars if you used 11 and one-half percent discount rate?

A Yes, sir.

Q O.K. With respect to page 6, once again would your answers be as they were to my questions with respect to the first 6 columns after the year as to line losses?

A Yes, sir.

Q Coal freight refers to the cost of hauling the freight, based upon the figures that you described earlier?

A The cost of hauling the coal, yes sir.

Q The cost of hauling the coal, yes. That is based upon

figures previously discussed in this memorandum?

A Yes, sir.

Q And the total revenue requirement then is just the addition of the columns that precede it?

A Yes, sir.

Q Present computation in the same manner?

A Yes, sir.

Q Page 7, I take to be the graph portrayal of what appears in pages 6 and 5?

A Yes, sir.

Q Accurately?

A Yes, sir.

Q And then page 8, of course, just restates the material that is on the bottom of the first page.

A Yes, sir.

MR. SHENKER: I have completed my voir-dire examination of the witness. I will object to the offer -- Oh excuse me -- there is something else I have to put in the record. I am sorry, Mr. Davis.

Q Mr. Hofacker, you agree with me, do you not, sir, that your deposition was taken during the week of March 3rd, off and on many times that week?

A Yes, sir.

Q And then recommenced on April 8th and then finally the last section of your deposition on April 9th, 1975?

A I believe those are the dates, as I best recall them.

Q You will agree with me, will you not, sir, that when your deposition last was taken on April 8th or 9th, 1975, I asked

you to produce for me the study which you were -- as you told me at that time, then doing -- and I understand that we are looking at Exhibit 12 as one of the studies that you were then doing?

A Yes, sir.

Q You know, of course, that that study was not produced at that time?

A I am aware of that, yes.

MR. SHENKER: I will object to the introduction of Applicant's Exhibit #12, on the grounds that this rather lengthy voir-dire examination, I think, has made it abundantly clear that the document is totally lacking in any kind of foundation, which would permit the Exhibit to be received sensibly. Certainly, if we were in a court of law there would be no question but what the foundation is totally lacking. Speaking to the rather lax rules of evidence as they apply to the present proceedings, I take it to be the general rule which the Hearings Examiner is attempting to apply, that the documents to be received in evidence must have some semblance of sensibility to them that provides for fairness for all parties and provides a meaningful record for the Board of Natural Resources. Within that context, therefore, the grounds of my objections are, first: that it will be impossible for us to cross-examine this witness, based upon this document, because as the witness has made clear on his voir-dire examination, there were numerous other people who actually prepared portions of

this exhibit, who would be the logical people to cross-examine on the various assumptions, variables computations, factors that were or were not plugged in with respect to the exhibit itself. Secondly, in view of the fact that we have been trying, since the 3rd of March, to obtain this kind of information, which on the exhibit is dated April 1st, 1975, which the witness, during his deposition of April 8th and 9th said that he was still in the process of preparing, a statement that was repeated under oath, by Mr. Labrie during his deposition of April 15th, 16th and 17th, 1975, and since the document itself, Exhibit #12, was not produced to us until May 5th, 1975, and it was not until May 28, 1975, that we were advised that this document, Applicant's Exhibit #12, is in fact the study that we have been asking for for the last 10 weeks, it appears extremely burdensome upon the Board and this record and the parties to the proceeding to have to conduct discovery now, in order to see who among the various parties who participated in the preparation of the exhibit knows what validly to show any the statements that appeared in the exhibit. Moreover, as the witness list for the Applicants shows, there are several witnesses who have expertise within the particular area addressed by Exhibit #12, who will be called to testify and who have prepared their own independent studies, and who presumably will be able to show the proper foundation on which their own independent studies were done; but in any event, in the state of the record as it exists now, we could not examine this witness

on the basis of this document to make any sense for this record or for the document. We could conduct discovery at this time, which was the effort made by the Department on the 20th of May, when this hearing was reconvened, in order to clear up this kind of questioning before it arrived at this form at this stage of the proceedings. The document, therefore, as presented, is incompetent and should not be permitted to be received in evidence upon any of the grounds of evidence for fairness under any rules that we were applying to this proceeding.

HEARINGS EXAMINER: When were these exhibits served on opposing counsel?

MR. BELLINGHAM: May 5, sir.

HEARINGS EXAMINER: Any of you other gentlemen have any other questions?

MR. WARNER: I would like to ask a question on voir-dire.

HEARINGS EXAMINER: Yes, sir.

Voir-Dire of Mr. Roger A. Hofacker by
Northern Plains Resource Council
By Mr. Warner

Q In connection with the proposed exhibit, Mr. Hofacker, you state, to your knowledge that all matters contained therein are true?

A Could you repeat the question, please?

Q Yes. We are concerned with the proposed exhibit, Mr. Hofacker, can you state, from your own knowledge, that all matters contained in this exhibit, are true of your own knowledge?

A I did not, personally, derive all the data in the study.

Q On page 2 of the exhibit, the second to the last paragraph, there is a statement, "For the rail shipment alternative, a peak loss of 12 megawatts has been assigned to the 230 kilovolt double circuit line carrying 400 megawatts between Colstrip and Broadview." Does that imply that the cost of the security line is being figured into the rail shipment costs in any way?

A It does.

Q Is that 230 kv under construction at the present time?

A It is not.

Q Parts of it?

A Parts, yes. One section of it, the double circuit 230 kv.

Q And is that being constructed at the present time for the use of the system as it presently exists?

A Yes, sir.

Q If you need this 230 line for your present system, what is the need for using it in the other alternative?

A It occurs in both alternatives, sir, so it's a washout.

Q You're figuring it in both alternatives?

A Yes, sir.

MR. WARNER: We would join in the objections upon the same grounds.

HEARINGS EXAMINER: Mr. Meloy.

MR. MELOY: Mr. Davis, I think what Mr. Shenker has

done on his voir-dire is to tell us that the guts of this paper entitled Exhibit 12 is simply not "with it," and the importance of the issues addressed in Exhibit 12 are of the utmost importance to the ultimate resolution of this hearing; therefore, the value of the exhibit to both the Applicants, as well as to the public parties, particularly the public parties, cannot be underestimated and it would seem to me it's absolutely essential to have the information which is not contained in this exhibit, contained in the exhibit before it's introduced. So, we join the objections of Mr. Shenker and the Northern Plains.

HEARINGS EXAMINER: Very well. All your objections will be noted, but will be overruled and I'll admit the Exhibit.

MR. SHENKER: Mr. Davis, for the guidance of the parties, if the Hearings Examiner has an opportunity sometime -- if the Hearings Examiner has the time, we would appreciate it if, on a ruling of the kind just made, that some grounds upon which the Hearings Examiner rests his ruling, be stated. I realize that that's at the discretion of the Hearings Examiner, whether he wishes to do so or not, but I represent to the Hearings Examiner that it would be of value to the parties for their preparation of their own exhibits and the offering of testimony, if we had some guidance of the Hearings Examiner. I can state to the Hearings Examiner that we have several exhibits in the mill that will, on the basis of that ruling, I think I should discard because they obviously contain a great deal of

information that isn't necessary; and if there is some guidance that the Hearings Examiner can give us, not necessarily at this time, we would certainly appreciate it.

HEARINGS EXAMINER: Well, basically in response to that I would say, under the law and the model rules, it said the essential requirements of contested case procedures are sufficient notice of opportunity to be heard, fair hearing and the right to judicial review on a proper record. It is my ruling that we are going to let everybody put in whatever kind of case they think they can make here, and you have an opportunity to look at the exhibits; and the weight of the probative values of these -- of the various exhibits will then be determined by the Board after, I am sure, based on the case to date anyway, that there has been full and fair opportunity to cross-examine, we have made no limitation on that, and there has been a very full and fair discovery as to what's in Montana Power's files. So on that basis, I think your objections are certainly well taken as to your statutory and common law rules of evidence, at this time. We asked the vice-president of Montana Power if this is the basis upon which they have made an alternate plan, which was gone into at great length; and how it stands up will be a question in time, Mr. Shenker.

MR. SHENKER: I appreciate those statements. Thank you, Mr. Davis.

MR. BELLINGHAM: Shall I continue sir?

HEARINGS EXAMINER: Yes, sir.

Continuation of Direct Examination of Mr. Hofacker by Applicants by Mr. Bellingham:

Q All right, Mr. Hofacker, turn your attention once again to Exhibit #12. I would like to ask you the points geographically which were included in this particular study?

A The study covered the movement of energy, either by coal or by electric wire, from Colstrip to Hot Springs, Montana.

Q Why did you start at Colstrip?

A That was the site of the generating station and the mine.

Q And why did you conclude at Hot Springs?

A Because that was the eastern terminus of a rather strong transmission network.

Q Now then, I'll call your attention to Exhibit 12, page 1. I think you indicated there that the starting year of the comparative study is 1980?

A Yes, sir.

Q And assume that the investment and transmission is completed by the end of 1979. Why were these years used?

A Because that would be the time when the full two units -- the entire plant -- would be on and in operation and delivering energy.

Q And in 19 -- You are talking there about the 1980 figure?

A Yes, sir.

Q And what about the 1979 figure?

A Well, the transmission has to be completed prior to the generation in order to be useful to the generation when it comes on.

Q And your next sentence there, states that you assume 1980 will be a full operational year for both units, is that correct?

A Yes, sir.

Q And why was that assumption made?

A It was a simplification so you didn't have to worry about a few months in '79 and less than full load on the Unit #4 in '80.

Q Now your next paragraph, would you read the first sentence

please?

A "The cost to all participants are compared on a year by year basis."

Q And the rest?

A "Fixed charge rates on investment are assumed to be the same for the five companies."

Q And why did you arrive at this conclusion?

A Again, as a simplification of the study. Each of the participants may have some variables in there but this is an economic comparison and we thought that was a fair assumption to use.

Q I am not going through this line by line, particularly in view of the cross-examination you have already received that brought out some of the factors that we normally would, but turn your attention to the next paragraph. Would you read the first sentence, please?

A "The cost for transmission has been escalated from estimates for present construction to the cost expected for the ultimate completion."

Q What do you mean by that?

A We have current costs known to us on construction of lines that, in view of the fact these lines are being built at some time subsequent to this year, we assume as has been the case in the past, there will be some escalation of those costs to the time of completion.

Q And your rate of escalation is a figure of what?

A 4%.

Q Now, I think this was brought out by somebody, but I would

like to ask you again why this particular figure?

A 4%?

Q Yes.

A We figured that was a conservative figure.

Q What do you mean by "a conservative figure"?

A Well, taking 1974 as an example, the escalation that occurred in that year in many of the items required in this transmission project escalated from 15 to something in excess of 20% in one year.

Q So you feel that 4% is on the lower end?

A Yes, sir.

Q And we are talking about inflation?

A We are that.

Q Now, coal freight escalated at 3%. This was gone in to somewhat before, but would you please repeat again, the reasons why this figure was used?

A The American Railroad Association statistics indicated the 7% per year freight increase in the United States over the past 20 years. Our experience on hauling the coal from our mines at Colstrip to our Corette Station in Billings, over the past 6 years was -- the freight increased -- 4.8% per year over that period of time, and coal freight escalated at 3% we figured is giving a considerable benefit to the cost of moving the coal, as compared to moving by wire so we make it conservative, not being unfair to the freight movement.

Q Now then, would you read us the next sentence, please?

A "The 230 kv transmission requirement if the 500 kv system is not built, has been added to the cost of the rail alternative."

Q Why?

A Because if the 500 Kv system is not built, movement of the power from Colstrip 1 and 2 and for our general system use requires some additional lower voltage lines to be built. The 500 Kv is usable if it is built, but it won't be there if they aren't.

Q Now then, in the next sentence you indicate that no plant costs are included except as they apply to energy losses on transmission. What do you mean by that?

A We were not investigating the cost of the plant. We were just investigating the movement of the energy in two different manners, from Colstrip to Hot Springs, so the only costs you would have would be those, as it says there, that you would apply to whatever losses there were on the electric transmission member.

Q In other words, then, you are not, in your appearance here, making any projections or assumptions relative to whatever differences there may be in plant costs -- if the plant were built, for example, in Hot Springs instead of Colstrip or vice versa?

A No, sir.

Q Let's turn to page 2 if we might, and we are dealing with expenses here and the first item, of course, is property tax. Now, this applies as to what?

A The ad valorem taxes on the transmission lines and the substations.

Q Those are indicated on the property tax?

A Right.

Q I think you previously testified on voir-dire, did you not, of Mr. Shenker and others, as to how you arrived at the particular figures 1.65%, escalated 4%, and 1.25% of the original costs escalated 4%, did you not?

A I did.

Q Now, the next item there, operation and maintenance, administrative and general, this is .80 of the original cost escalated 4% at the time of completion, is that right?

A Yes, sir.

Q And that applies here again to what?

A To the transmission escalation.

Q Now then, I am not sure whether or not you indicated as to how you arrived at that particular figure of .80 percent?

A We obtained that from our rate department, which is a historical basis that they retain as far as -- in this area --

Q As to the next item; transmission line losses. Would you explain, generally, what is done in connection with this?

A We applied a value, using numbers indicated in there to the peaking capability that was lost through the transmission -- that was lost through the transmission system -- we as well applied a value for the energy that was lost. Now, the peak loss is energy over the peak periods in our system so it involves capital costs and it involves costs of fuel and so forth to produce that energy.

Q And you have the items there of capacity charge and increment do you not?

A Yes, sir.

Q Would you explain what is meant by those?

A The capacity charge is that charge for the investment of capability -- as an example, we used the cost installed per kilowatt of a gas turbine, as a source of peaking capability. And to that then, we applied O and M and A and G charges.

Q And the figures that you used as indicated on page 2 of the exhibit, were obtained from your own experience and other means, is that correct?

A Yes, sir and FPC manuals.

Q What about the next major heading? Incremental? What is meant by that?

A Those are the costs that you incur as soon as you start actually generating power or creating energy to make up for the energy losses. That as you see, is coal, and there is some variable operational maintenance expenses in a generating plant as you increase the generation on the units.

Q Now, at the bottom, you have the last sentence stating the composite value of losses at 8.4 mills per kilowatt hours in 1980 escalated to 25 mills until the year 2016 due to the above factors.

A Yes, sir.

Q Why did you use this figure?

A To again, simplify calculations only. You have one number to multiply these kilowatt hours by instead of applying each case to two different numbers.

Q Now, moving to page 3, "Railroad Freight", you used the figure of 9.5 mills per ton mile.

A Yes, sir.

Q And would you state again, why that particular figure was used?

A As I stated previously, our investigation -- or attempt -- to get freight rates were not completely successful as far as specific rates, conversations with the railroad people had not brought forth specific rates, as stated by them, rates are often customized, so to speak, for the job at hand. We contacted other -- others -- including our Western Energy Company what might be logical for freight rates; we -- as I said before -- that the Department of Natural Resources had so stated that they had received this rate from Burlington Northern. We checked further on that and it appeared to be a good number to use for the freight rate.

Q Well now, did any outside experts analyze that particular freight rate?

A Yes, sir. The Gibson-Hill people.

Q And Mr. Pettibone, who was listed as a witness in this case analyze it?

A Yes, sir.

Q And you accepted his recommendation relative to this figure, did you?

A Not just with this one.

MR. SHENKER: Mr. Pettibone is going to be here and we will have a chance to cross-examine him and find out what he has to say. I don't think we should be asking the vice-president of the Montana Power Company to tell us what the vice-president of Gibson-Hill says is a good figure for rail rates.

HEARINGS EXAMINER: Objection be sustained.

Q Were you aware of any correspondence between the Department of Natural Resources and the Burlington Northern relative to this -- ?

A We have copies of such correspondence.

Q And what does that correspondence indicate?

A It indicates 9 1/2 mills.

Q Is that a reasonable figure?

A I consider it a reasonable figure based upon that letter.

Q All right, you have escalated that particular figure at 3%?

A Yes, sir.

Q And why?

A As I stated before, to be conservative so we didn't penalize the rail system of coal unnecessarily. Our information indicated that the escalation to be expected could exceed that considerably, based upon what history has shown.

Q All right, coal requirements. Would you explain in brief what you did? Let's go back to the question again Mr. Hofacker. Coal requirements on page 2 -- or 3 -- will you briefly indicate what was done regarding this?

A In order to arrive at a basis for study, there had to be some load factor assigned to the plant from which you would determine the amount of coal that would be needed to provide that amount of energy and use that in your calculations for the freight costs of moving that amount of coal. For again simplicity, we used the Department's assumption of a declining load factor although we are not convinced, in our own minds, that it will decline that much, since these are rather efficient plants and

may have a higher load factor as we go out in the years. However, we did use that -- their -- assumption which as shown there, includes -- estimates -- 80% load factor on the plant for the first 9 years, 1999 to 1998 -- 1980 to 1988 -- and then a sequence of 7 year intervals thereafter with reduced amounts of coal required as represented by the lower load factor. The lower level at which it would operate.

Q What do you mean by this particular phrase, declining load factor? Perhaps that should be explained?

A Declining amounts of generation produced by this plant. These are annual averages that -- 75 -- for instance the second item is 75% of the maximum capability would be the average amount of energy for that year.

Q Yes. Why does it decline or at least as far as the subject of this particular exhibit is concerned, why did you assume a decline?

A As -- Because past history has indicated that as plants got older they were used less. They were normally smaller units and their efficiencies were lower than the newer ones that come on line, however as I said before we feel that these plants may be as efficient as any subsequent plants for a much longer period of time than that schedule would indicate.

Q Insofar as this particular approach that you have used is concerned, which of the two methods, or alternatives, does this approach favor?

A It favors the shipment of coal.

Q Why?

A Because it's fewer tonnages of coal that are shipped over

the years.

Q Now then, the last paragraph under that you indicated freight costs in each of these periods so that total costs of the rail alternative appears flat between changes. I call your attention to the graph on page 7 -- at page 7 of the exhibit -- and ask you if that is represented there?

A Yes, sir.

Q Point out in what fashion?

A The above -- the top line of the two -- indicates the cost of the coal shipment, and as you can see, it is level in the portions from 1980 to 1989, because there was a 9 year span there, then there was a jump to the next level of coal shipment for the next 7 years and then a jump to the next and so on. The lower line is the cost per year of the 500 Kv transmission associated losses, capital costs and so forth, and used -- utilized -- the data from the first table after the written part of the --.

Q Let's move over now to capital costs as they appear in this figure. In planning, you have a 15% equity. What do you mean by that?

A That's the return on money invested by stockholders.

Q And why was this 15% utilized?

A That is considered the required return for a utility -- a good electric utility operation.

Q And 8% bonds, what is that?

A It approximates the going rate for bonds and debt financing at the current date.

Q And the 50% debt, what does that mean?

A 50% of the investment were financed by bonds and 50% by equity or stockholders money.

Q All right, you indicated 51% composite tax and that relates to what?

A The Federal and State tax.

Q I think you went into the depreciation schedules previously on voir-dire, did you not, I will not ask you any further questions regarding that. Now then, on page 4, at the top of the page, you have the 500 kv transmission. Now, what were the costs there?

A The costs include the 500 kv lines, the Colstrip-Broadview 230 kv double circuit terminals currently under construction, the conversion of the -- that -- line which will be additionally a 230 kv double circuit line, converting that to a 500 kv -- single 500 kv line, and the switch yards associated with this transmission.

Q Now this particular subject is applicable to which alternative?

A The 500 kv transmission of electrical energy.

Q Your next grouping there is the transmission required for the 500 kv. That is applicable to what?

A The rail shipment of coal.

Q And would you explain that, please?

A It is the transmission that would be necessary on our system if the 500 kv system is not built. The additional transmission, I should say, on our system if the 500 kv is not built.

Q I think you probably brought out many of the factors in the next section, although, I don't know that IDC was included.

What does that mean?

A That's the -- the IDC is interest during construction. Now, I think the correct accounting terminology is a advance funds during construction, or something like that, or used during construction, but it's the same thing. It's an application of interest of the -- the interest -- it's a computed number by our financial department to recognize some return on the capital funds utilized prior to the completion and operation of a revenue producing facility.

Q Your next heading "Extension of the Study" indicated that it does not extend to Spokane and you mentioned two factors involved. Would you briefly go into them?

A On the -- on the study on a mile for mile basis, the rail shipment of coal is over 3 times more costly than the transport of power over the Bonneville grid system by their current wheeling rates, so shipping the coal to a Spokane location would thus increase costs to the Washington Water Power for General Electric and Puget customers for that added increment of freight from Hot Springs on that would be shipped by rail rather than the energy by wire. The second item, alludes to the fact that 40% of the production from Units 3 and 4, belongs to the Montana Power Company and the Pacific Power and Light and in order for us to get that amount of power, if the plants -- or the generation source -- was at Spokane would require our paying wheeling to get it back into the Hot Springs area.

Q I thinks this also, was brought out on voir-dire, was it not?

A Yes, sir.

Q Turning now to page 5, and I am sure that the original exhibit

contains the page numbers, I am not so sure that the exhibits do contain the original numbers, but that is a table that is headed "Colstrip-Hot Springs 500 kv transmission system", is it not?

A Yes, sir.

Q And annual revenue requirements and below that you have three zeros. What does that indicate?

A Thousands of dollars.

Q All right. This applies, I assume to transmission system only, is that right?

A Yes, sir.

Q And for the year 1980, for example, you have figured depreciation on what?

A The transmission investment.

Q A -- what figure?

A 3,607,000 dollars.

Q Then the next item is bond interest and equity return, you previously testified to that, did you not?

A Yes, sir.

Q It appears before, and the figure there is what?

A 25,127,000 dollars.

Q Your federal and state taxes, I think you testified to that previously relatively to that figure. What is that figure?

A 3,130,000 dollars.

Q Property taxes?

A 4,342,000 dollars.

Q Operation and maintenance?

A 1,847,000 dollars.

Q And line losses.

A 3,192,000 dollars.

Q Now then, you have totaled those for each year, have you not?

A Yes, sir.

Q And the total of all those previous figures there is how much?

A For the year 1980 it's 41,245,000 dollars.

Q Now, you have reduced that to present worth, is that right?

A Yes, sir.

Q What do you mean by that?

A That's putting a time value on money.

Q How? In what way?

A Well, you can look at it two different ways. If I have a dollar now and get 11 and one-half percent interest it's worth a lot more a year later or putting it another way, a dollar spent a year later, would be depreciated by approximately 11 and one-half percent would be my value now. It's a method of getting a future expenditure back to some specific point in time.

Q Why do you use the figure 11 1/2%?

A That is the -- on a 50-50 debt ratio -- you have 15% equity return and 8% debt -- interest on debt -- the total of those is 21% and 50-50 would be half of that - 11 1/2%, so it's half of 15 and half of 8 and you come to 11 1/2.

Q When you add 8 and 15, what figure did you get?

A 22 -- 23%. My arithmetic escaped me there for a moment. 15 and 8 is 23, yes, sir.

Q I hate to admit it, but I added them up and came up with 22.

And then you take half of the figure 23, is that right?

A Or you can take half of 15 and half of 8 and add them together and get the same thing.

Q And the figure that you obtained?

A 11 1/2%.

Q All right. I don't want to go into detail in subsequent years, but every year, during the course of this calculation, you have done the same, is that correct?

A Yes, sir.

Q And that -- how many years total is that?

A 37 years.

Q And why did you do that?

A That's the nominal life of the plant.

Q Of what plant?

A Colstrip 3 and 4.

Q Now then, I notice that the bottom right-hand side of the table appearing on page 5 of Exhibit 12, you have totaled up the last two columns, have you not?

A Yes, sir.

Q The total revenue required is how much?

A 1,830,673,000 dollars.

Q And when you present worth that figure, what is that?

A 393,268,000 dollars.

Q And you have a figure there levelized. What do you mean by that? What is that figure, first of all?

A That's a level -- that's a constant number which -- I'm trying to think of the term -- if you invested 46 million -- oh, the number is 46,046,000 dollars and that applied or invested in

each of 37 years, would come up to this 1,830,673,000 dollars when you apply interest compounded at 11 1/2%.

Q Now calling your attention to page 6, it's headed "Colstrip-Hot Springs Railroad Coal Shipment Annual Revenue Requirements" and this is a comparison chart, is it not? Comparing the shipment of coal by railroad to the transmission of the same amount of energy, the latter appearing at page 5, is that right?

A Yes, sir.

Q Now, let's go into this page 6 chart "Railroad Coal Shipment". For the year 1980 you have various figures set down for depreciation, bond interest and equity return, federal and state taxes, property taxes, operation and maintenance and line loss, do you not?

A Yes, sir.

Q And those same headings appear on the table at page 5, is that right?

A Yes, sir.

Q So I assume that your information on each of those particular items would be the same as you explained them when they -- when you went through the table on page 5?

A Yes, sir.

Q As far as the particular figures are concerned, what are they applicable to?

A Those first 6 columns are applicable to the 230 kv transmission that would have to be built in lieu of the 500 kv system.

Q Now, in the next column, "Coal Freight". Do you see that?

A Yes, sir.

Q And that involves what?

A That's the tons of coal shipped for that period at 9 1/2 mills -- at the current price of 9 1/2 mills per ton mile escalated to the years indicated on the chart at 3% per year per unit.

Q Now, you have taken the totals, the revenue required, the present worth, just as you did on chart #5 -- or appearing on page 5, is that right?

A Yes, sir.

Q And those figures appear at the bottom, do they not?

A Yes, sir.

Q I would like to call your attention now, to page 8, of this particular exhibit and ask you what that tabulation is?

A That is the net result of the study and are the same numbers that appear on the lower portion of page 1 of the exhibit.

Q And do those figures also appear in the tables on page 5 and 6?

A Yes, sir.

Q Now then, let's first look at "relative costs, rail shipment of coal". Is that the correct terminology?

A Yes, sir.

Q And what does that figure and what is it underneath?

A It's 2,221,000,000 dollars.

Q And what does that represent?

A The total costs over 37 year period.

Q And does that figure appear at page 6?

A Yes, sir.

Q Now then, this is a 73 -- or 37 year total, is that correct?

A Yes, sir.

Q The next heading there is "Transmission". What is that figure?

A 1,830,000,000 dollars.

Q And what does that figure represent?

A The total costs of the transmission and losses for the 37 year period.

Q Transmitting the energy?

A Transmitting the energy via wire.

Q And that is the other alternative, is that correct?

A Yes, sir.

Q The next figure is a denoted a difference, and what is that?

A The difference between the rail movement of energy versus the electrical transmission of energy.

Q And which alternative do the figures favor?

A The transmission by electrical means.

Q What is the difference?

A 391 million dollars for the 37 year total.

Q That is the total figure?

A Yes, sir.

Q So that it would take 391 million dollars less to ship this amount of energy by transmission line rather than by shipping coal?

A Yes, sir.

Q Now then, the next heading is "Annual Levelized"?

A Yes, sir.

Q And where are those figures?

A They're also on -- appear on the lower right-hand corner of pages 5 and 6.

Q And the figure under the column, rail, is how much?

A 54,352,000 dollars.

Q Is that an annual figure?

A This is an annual levelized figure.

Q And you previously testified as to what levelized is?

A Yes, sir.

Q Now, what is that figure under the heading of "Transmission"?

A 46,046,000 dollars.

Q And you have a difference there also, do you not?

A Yes, sir. 8,306,000 dollars.

Q And what does that mean?

A That's the annual difference for each of the 37 years on a levelized basis.

Q And which alternative does it favor?

A Transmission by electrical means.

Q I call your attention to page 7 of this particular exhibit. You testified breifly concerning this, as I recall, and would you explain what that does represent?

A It represents graphically, accurately, the data on pages 5 and 6 of the report with the -- the result is that the coal shipment being more costly appears in the above line and the 500 kv in the lower line and this graph shows the cost from 1980 to 2016. The left-hand side is millions of dollars and the incremental difference throughout, between the two, is the same as the summary we just covered on page 8.

Q Is there anything further concerning this particular exhibit that you would like to add?

A No, sir.

Q I will now hand you what has been marked as Applicant's Exhibit 13, and ask you what that purports to be?

A That is another economic study, or analysis, simplified it's the economic impact within the state of Montana with the plants built at Colstrip versus what the economic impact would be with the coal -- with the plants built outside of the state of Montana and the coal moved westward from Colstrip through Montana to such site outside of Montana.

Q Now, is there any particular site denoted in the study?

A No.

Q Other than the fact -- ?

A No, it's just outside the state of Montana.

Q For the purpose of this study, it is not necessary to localize any particular site?

A No, sir.

Q What factors were considered in making this particular economic survey?

A There were essentially three general categories. There was the personal income, after taxes, from those employed under either condition, that is the employees at the plant or employees on the railroad, employees that would be maintaining the transmission and would be associated with the plant. The second category was the materials and supplies that might well be purchased in Montana and the third were the state tax revenues. All three were combined to get the total economic benefits under either case.

Q So you have two alternatives here. One is the plant at Colstrip and the other is the plants located out of the state with rail shipment of coal?

A Westward across Montana, yes.

Q Was this prepared with your supervision?
A It was.
Q At the Montana Power Company offices?
A Yes, sir.
Q And as far as you know, do you believe it to be true and accurate?
A I do, sir.

MR. BELLINGHAM: We now offer into evidence Applicant's Exhibit #13.

MR. SHENKER: May I voir-dire the witness, please?

HEARINGS EXAMINER: Yes, sir.

MR. SHENKER: This will be extensive Mr. Davis. I don't know if you wish to take a recess before you go into it or not.

HEARINGS EXAMINER: If you would like to, it would be fine, yes.

MR. SHENKER: I would just as soon go on.

HEARINGS EXAMINER: All right, we'll proceed for another 15 or 20 minutes.

Voir-Dire of Mr. Roger A. Hofacker by
Department of Natural Resources and Conservation
By Mr. Shenker

Q Mr. Hofacker, the proposed Exhibit #13 for the Applicants is labeled as preliminary, is it not?
A I see that it is sir.
Q When is it going to be final or is it already final and the word preliminary just wasn't removed?
A It's final and the word preliminary has not been removed, sir.

Q Was there a stage in which the document was preliminary and changed?

A There was a stage during the development that it was being checked for accuracy.

Q So that's sometime after April 29, 1975?

A I don't believe so.

Q Do you recall that this is another of the documents which I asked you to produce while your deposition was being taken at various stages?

A Yes, sir.

Q Now, let's go into the document itself. This document was not produced, was it, until it got into the packet of exhibits that were eventually delivered to us as hearings exhibits?

A That's my information that that is the way it was.

Q Right. But you didn't produce it for us?

A No, sir, I did not hand it to you.

Q You didn't ask somebody else to hand it to us either, did you?

A Yes, I think I directed that this be provided to the parties -- to get to you -- when it was done.

Q As a final marked exhibit as part of the package?

A Yes, sir.

Q But before that time, you didn't see that it was produced for us?

A No.

Q All right. The summary on the first page following the format of the previous exhibit, in which the first page there contains a summary of the rest of the stuff was back up in this Exhibit #13, the first two pages is summary and the rest

is back up, is that right?

A Yes, sir.

Q Let's go to the summary first. The reference after the first paragraph of the summary is the plants at Colstrip with 500 kv transmission and we assume that to be the four units at Colstrip.

A No, sir. That's the two units at Colstrip, 3 and 4.

Q You are only talking about Colstrip 3 and 4, but you are talking about all the 500 kv transmission?

A Yes, sir.

Q And that's being compared with an unknown number of, and indeed an irrelevant number, of plants outside the state, I take it.

A Plants -- yes, sir. We have assumed the same amount of fuel. It's a coal-fired plant somewhere outside of Montana, coal-fired units.

Q You think you have assumed the same amount of coal being burned at Colstrip being transmitted by rail car?

A Yes, sir.

Q But that assumption is also accompanied now, I understand it, with another assumption that says that the coal taken by the rail car will produce the same amount of energy in some other plants somewhere else.

A Yes, sir. Economically we have adjusted to account for this.

Q That is the assumption that you made in this study. And any economic adjustments that you have made for that assumption do those appear in the back-up data?

A Yes, sir. As far as losses and so forth.

Q Those we will come to then in the back-up or summary, of course.

Now, in the personal income section, you take a factor of 2.4 by which you multiply amounts for permanent jobs to get secondary jobs.

A Yes, sir.

Q Why do you do that?

A That's a factor that has been used in many areas, as far as the peripheral jobs that develop for every primary job that -- The state of Montana has used it in some, it's a figure that is in some of the economic reports. It's a number that has been used -- or some number close to that.

Q That's generally the figure everybody uses?

A Yes, sir, to the best of my knowledge.

Q You're using that figure, then, aren't you for both the rail alternative and the plant alternative?

A Yes, sir.

Q What's the short-term income factor of 1.4?

A We anticipated that construction jobs, although they may last for 3 or 4 or 5 years, would not develop as many peripheral jobs as a long-term permanent job.

Q 1.4 are construction jobs?

A Yes, sir.

Q And you have used the construction jobs both for the railroad alternative and the plant alternative?

A Yes, sir.

Q You used a figure of 82% of 342 total jobs for railroad. Where did you get that figure?

A Based on the difference of mileage from Colstrip to the state line versus the mileage from Colstrip to Spokane and the 342

total jobs are the jobs the railroad supplied to the D&R as far as employment in that area.

Q You took the D&R figure for the total jobs and you used the 82% figure by simply taking actual miles -- are those land miles or rail miles?

A Rail miles.

Q Actual rail miles between Colstrip and Hot Springs and comparing those with the actual rail miles between Colstrip and Spokane.

A Yes, sir. Not having knowledge as to the exact breakdown of crews that would be living in Montana versus crews elsewhere.

Q You have no idea, therefore, as to what the actual rail jobs in Montana will be. What you did was take a figure that was based upon the number of rail jobs from Colstrip to Spokane and applied an arbitrary percentage based upon rail miles?

A Yes, sir.

Q The dividend rates are something that appear later on, are they not?

A Yes, sir.

Q I assume, Mr. Hofacker, that your answers to my questions with respect to the general notes as to why you chose the escalation and discount rates, that appear on page 2, would be the same as to my questions with respect to the previous exhibit?

A They would.

Q Moving on to the back-up data which starts on page 3, tell us if in the document the total wages were determined from Bechtel's trend based estimate for Units 3 and 4, at 11,980,000 manhours?

A Yes, sir.

Q What's the Bechtel's trend based estimate?

A That was the estimate provided us -- part of the estimates of cost of Colstrip Units 3 and 4 -- the construction of them.

Q Bechtel gives you trend based estimate called time, does it?

A This was the trend based estimate of 7/26/1974, sir.

Q July 26, 1974?

A Yes, sir.

Q Why did you take July 26, 1974 figure over any of the other monthly figures that Bechtel supplies you?

A It looked like a good number to us -- I don't -- I know of no other reason.

Q Because that number included 12% of the manhours which were supposed to be done by Bechtel people outside the state of Montana, you had to reduce that figure, is that right?

A Yes, sir.

Q Who told you 12% of the manhours came from non-Montana Bechtel employees?

A I believe this was in their estimate in detail.

Q That's in their trend base estimate?

A I'm quite sure that it is.

Q Who put the trend base estimate together for Bechtel on July 26 1974?

A I'm trying to think of the man's name that's been doing that for us.

Q Was it Mr. Turnquist?

A Yes, sir, Mr. Turnquist.

Q And the information from Bechtel was probably furnished to you

by the fellow who signs most of the letters, which would be Greg McCaughan, if it's on the administrative side and Warren Leffmann if it's on the engineering side?

A This is probably so.

Q They, of course, wouldn't have put the information together; they leave that up to the fellow, I think, named Turnquist.

A Yes, sir.

Q How did you get the figure of 6 dollars and 6 cents plus per hour for the remaining manhours of manual labor on the job?

A It came from a 1974 wage rate, as it states there, supplied by Bechtel.

Q I don't understand what a 1974 wage rate is?

A It's an average of all the different crafts and what the average rates were, one of the means they used to total up what they think construction costs are going to be.

Q And somebody at Bechtel supplied that to you too?

A Yes, sir.

Q You don't know who that is? Was that Turnquist also?

A It might well be.

Q Now, the Bechtel trend base estimate is not in this exhibit, is it Mr. Hofacker?

A No, sir.

Q Then there is a reference to the 1978 center of gravity. What does that mean?

A Well, you start construction over a period of time, there's a point at which the costs, thereafter, -- I will go back and start over again, I'm being lost.

Q O.K.

A You can't -- it wouldn't be logical to apply full escalation over the full time because as soon as a piece of equipment is purchased or the labor is paid for, the escalation of time is only to that period of time and there is a center of gravity in any project where you can apply one number to that and it will account for the escalation of the whole project. This is a mathematical, statistical approach.

Q What happens after 1978? Does it stop escalating?

A If we escalated everything up to 1978, that would account for the escalation on the decreased amount that would take place thereafter.

Q And after 1978 you are using some figure other than 6%?

A We used 6% up to 1978 and stopped at that center of gravity, sir.

Q What happens after 1978? As to escalation rates?

A They may go a lot higher than that.

Q But you don't compute any in here?

A If you took every cost during the installation time; labor and material, year, month or week by week by week, over the full length, applying the escalation as it was appropriate each time, you would come back to the same number as if you took the escalation to the center of gravity for the job.

Q I'm not asking you to defend the document, Mr. Hofacker, this is a voir-dire examination, and I'm supposed to be trying to find out what the document says and what it doesn't say. Anyway, are you telling me that after the year 1978 center of gravity, you do not apply any escalation rates?

A I would like to respond to that by saying that what you

actually paid would reflect escalation rates but the total with those escalation rates, would be the same as when you applied it to the job, to 1968 or '78, which I said before. It is a mathematical --.

Q For the purposes of this study, Exhibit #13, after the year 1978, do you or do you not, use any escalation rates?

A I believe the answer is, do not.

Q The next hourly wage figure you use is $5.85 per hour. Did that come from Bechtel in the same manner?

A No, it came from our wage rates for our knowledge of a contractor's lineman scale in the state of Montana.

Q Who in the Montana Power Company supplied those figures?

A They were gotten from Mr. Kelley.

Q Paul Kelley?

A Yes.

Q Then the next paragraph says that the yearly scheduling of the total wage contracts was spread in proportion to the total cash flow estimate dated April 8th, 1975. Was this another Bechtel document?

A Wait a minute -- I lost track of -- the next paragraph?

Q The third paragraph on page 3.

A Oh, yes sir. May I go back to the previous statement. I had skipped down to the transmission construction rather than under the plant construction. Those were Bechtel numbers.

Q Going on to the next paragraph still under A before you get to B?

A Yes, sir.

Q The cash flow estimate dated April 8th, 1975, is that from

Bechtel?

A I believe it is based on Bechtel data, adjusted to reflect costs of the participants.

Q Who did it?

A It was done in the generation department, I think, by Bob Moreen.

Q Mr. Moreen?

A Yes, sir.

Q Next, going on to B. Transmission construction wages, you have 860 manhour estimate for the 500 kv steel tower line and switchyard construction.

A That is an error. That word should be manyear. This was one I did not notice until just the other night.

Q Have you made a revision in your exhibit there? Page 2, paragraph 1 B. Excuse me, page 3, paragraph 1 B.

A No, and we should in all of the exhibits that are still hours.

MR. SHENKER: Would you like to make that revision?

MR. BELLINGHAM: Yes, sir.

HEARINGS EXAMINER: Are you speaking now of where it says 10 million 542?

MR. SHENKER: No. It's where it says transmission construction wages item B under 1 on page 3, where it says wages based on 860 manhour estimate should be 860 manyear estimate. Am I correct, Mr. Hofacker?

Q Whose estimate was that? C.T. Main's?

A No, sir.

Q Was that Chet Taylor?

A It could very well have been him. It comes through his hands

anyway.

Q It says for the 500 kv steel tower line and switchyard construction, is that one tower or two towers? One line or two lines?

A There are two lines. It's just a description of one of them there. It's a steel tower line and there are dual lines.

Q It's 860 manyears to build the two 500 kv lines, that you call here steel tower line?

A Yes, sir, and the switchyards associated therewith.

Q And the lineman's scale is $6.99 per hour according to C.T. Main figures?

A No, sir, those figures I mentioned before, that -- .

Q Paul Kelley?

A Yes, sir. The Montana Contractor's scale.

Q And the transmission line of 230 kv from Billings to Hot Springs via Anaconda, is a 230 kv woodpole line, not a steel tower line?

A Yes, sir, as it so says there.

Q Who made that determination?

A The engineering department.

Q They have no supply for such a line, do they?

A No, sir.

Q This says if you decide that -- or somebody decides Units 3 and 4 are to be built outside the state, that you may build a woodpole line from Billings to Hot Springs with 230 kilovolts?

A Yes, sir.

Q And that labor cost. Did that come from Kelley also?

A No, this was a calculated -- a calculated labor cost gleaned from the total cost of the job, based on our experience with about 1/3 of the transmission construction project is the contractor's cost and about 35% of that contractor's bid is labor. This is based on past jobs. So that 1/3 times 35% comes out to that factor of 11.8% of the total completed cost.

Q The total completed cost estimate was a figure of 24,644,00 dollars?

A Yes, sir.

Q To apply to all woodpole lines and terminals whether they were 500 or 230 kvs? Is that right?

A No, sir. These are the 230 kv.

Q The 24 million dollar figure is just for 230 kv?

A Yes, sir.

Q Where did you get the 24,644,000 dollar figure?

A From our estimates of what it costs to build 230 kv lines, of the length involved here.

Q From Billings to Hot Springs via Anaconda?

A Yes, sir.

Q How did you make those estimates?

A Based on our past experience of cost to build a woodpole 230 kv line and we have built a lot of them.

Q Who supplied the figures to the Montana Power Company?

A We had them in our engineering department and the engineering department has a transmission construction section that has this data, and this data was used by our planning department in working up this estimate.

Q Who from the planning department prepared this Exhibit 13?

Was it Bob Stuart?

A No, sir. Davenport. R. P. Davenport.

Q O.K. So somebody gave Mr. Davenport the figure of 24,644,000 dollars.

A No.

Q No? How did Mr. Davenport get the figure?

A He received the cost per mile and the -- from the transmission section -- and the price of the sub-station from the sub-station section and put the estimates together.

Q How much was the price from the sub-station section?

A I think farther on it shows what sub-station costs might be or somewhere I think there was one. I am looking. It has not been broken out in the back up data as we have here.

Q Do you know what the sub-station cost is?

A Not at the moment.

Q Mr. Davenport would know that?

A Yes, sir.

Q And somebody gave him the figures for the sub-station?

A Yes, sir.

Q Who gave him the figures for the sub-station?

A The sub-station section and I am not sure what individual in that section but William Haller is in charge of that section.

Q Someone gave him the cost per mile of a woodpole lines, would that have been Mr. Haller's section also?

A No, sir, that would be Mr. Don Olsen's section.

Q Don Olsen's section?

A Yes, sir.

Q Do you know if it was Mr. Olsen or someone else from his

section?

A I do not know.

Q And Mr. Davenport would have those figures?

A He would.

Q And those are not in this document either?

A No, only as I see the total numbers here rather than broken down.

Q What is the number of miles that you would be stringing the woodpole lines from Billings to Hot Springs via Anaconda?

A The mileage is about 270 miles. I would need to check back-up data to give that exactly.

Q That fact is not in this document?

A It's not in this document.

Q Mr. Davenport would have that?

A He would.

Q Who gave it to him?

A I think he gleaned this from maps and from existing mileages of lines in the same general area.

Q Then on page 4 at the end of this paragraph B, under 1, there is a statement that you used a factor of 1.06 to multiply times the construction wages that were left after you had done your other computations, in order to account for construction management wages. How did you get that factor?

A Well, we estimated that probably about 7 inspectors as compared to 104 construction workers on the job and that's where the 6% came about.

Q Where is the reference to 104 construction workers?

A That's in the back-up data, sir.

Q We're in the back-up data. Is there another place in the back-up data?
A I mean in the back-up data we do not have with this document.
Q Oh I see. O.K.

MR. SHENKER: I am ready to go to the letter C, Mr. Davis. Would you like to take a recess now?

HEARINGS EXAMINER: Yes, why don't we take a ten minute recess

(TEN MINUTE RECESS)

HEARINGS EXAMINER: We are back on the record.

CONTINUATION OF EXAMINATION OF ROGER A. HOFACKER

Voir Dire, by Department of Natural Resources and Conservation

By Mr. Shenker (cont.)

Q Do I understand, Mr. Hofacker, that item (c) on page 4, Plant Operation and Maintenance Wages, suggests that you got your estimates for operation and maintenance from the FPC document which is in the possession of Mr. Davenport?

A Yes, sir.

Q And that that documentary information is not in this exhibit?

A That's right, sir.

Q And in order to come up with a figure on operating and maintenance costs for the two 700 megawatt units, you had to interpolate from those figures?

A Yes, sir.

Q Then, based upon experience at the Corette plant, somebody made a determination that 45% of the total operating and maintenance expenses would consist of labor, is that right?

A Yes.

Q Who made that determination?

A Richard Davenport must have, upon consultation with the operating department and their expense records.

Q These are expense records you keep for the Corette plant?

A Yes, sir.

Q Who keeps those?

A Somewhere in our accounting department. I just don't know where, but they're in the plant records somewhere, or in the company records, I should say.

Q And again, your 2.4 long-term income factor, is that the same derivation as you described to me with respect to Exhibit 12?

A It is.

Q In the last sentence of paragraph (c), there's a reference to the 35% variable portion. What's that?

A That's the portion of costs that vary with the output of the plant or the generation of the level of the plant.

Q I don't find where the 35% fits. My simple mind adds 45 and 45 and 35 to get a hundred, and it doesn't do it. What's the 35%?

A I'm not sure I know where you got the 45 - 45. I can see one 45. It's 45% of 45.

Q I don't have much better success adding 45 and 35 to get a hundred, either. I still don't know what the 35% refers to. The reason I'm confused, I suppose, it says the 35% variable portion thereof, and I don't know what the "thereof" is and I don't know what the 35% is.

A I would believe, going back to the FPC document, this could be clarified as to what that 35% variable is.

Q But you don't know?

A I gave you my opinion what it was, what I thought it was. The document would verify this.

Q Being able to give me the 35% figure is not something within your grasp at the moment?

A No, sir.

Q And there's no backup data on that in that document, Exhibit 13, is there?

A No, sir.

Q Then on transmission operation and maintenance wages, item (d) on page 4, there's a reference to a calculation of .64% of escalated final costs of all transmission investment. Who did that calculation and on what basis?

A Mr. Davenport did that calculation.

Q On what basis?

A On the basis that (a) and (g) is 25% of (o) and (m), and that's the mathematical deduction that comes to the .64%.

Q The .64 is 45% of something?

A The .64 is 45% of something?

Q Isn't that what you just told me?

A No, sir, I said (a) and (g) is 25% of (o) and (m). If you take (o) and (m) and add 25% to it, this is the (a) and (g) factor, so the total 25% of the total (a) and (g) and (o) and (m) results from (o) and (m) times 1.25.

Q So if you had an (o) and (m) of .45% and you multiply it by 1.25 -- ?

A No, you multiply by 25 to get the (a) and (g), but 1.25 if you want the total of the (a) and (g) and (o) and (m).

Q Now who did these calculations, Mr. Davenport?

A Yes, sir.

Q How did he get the (a) and (g)from which to do the multiplying? Or the (o) and (m) from which to do any multiplying?

A This is a figure derived from our accounting records as to what (a) and (g) charges have been, administrative and general charges over our operation.

Q Then there's a reference to linemen wages, $5.40 over $7.26. Where did those figures come from?

A Based on our lineman's wage scale, the Montana Power Company's lineman wage scale.

Q Did Walt Kelly get those for you?

A He didn't have to. I was provided a copy of our union agreement, and Mr. Davenport used that.

Q You got those out of your union agreement?

A Right.

Q Which union agreement?

A The IBEW.

Q The IBEW?

A Yes, sir.

Q When was that contract entered into?

A It was the one just preceding the one we just completed here this spring, and I think our last agreement was a two-year agreement, so it would have been 1973, I believe.

Q And you used the 1973 contract?

A It provided for wage scales in 1974 and we used that figure.

Q But there is a new IBEW contract that was just negotiated within the last month or so?

A Yes, sir.

Q Now, the 530 Kv total final cost in item (d) should be the same figure as appeared in Exhibit 12, should it not?

A I would believe so.

Q And the 230 Kv total final costs would also be the same figure?

A Yes, sir.

Q The $19,436,000 figure from Colstrip to Broadview for the 230 Kv double circuit line which will be converted in the

future, should also be the same figure?

A It should.

Q Then I assume those were derived in the same manner as the testimony you gave me on my voir dire examination with respect to Exhibit 12?

A Yes.

Q Now, railroad wages is the next item, (e), and you say that it's based upon $5,064,000 per year for coal shipment to Spokane, in accordance with the D and R Draft Environmental Impact Statement?

A Yes, sir.

Q Is the figure $5,064,000 per year in accordance with the D and R Draft Environmental Impact Statement?

A I believe that is the figure from the Draft Environmental Impact Statement.

Q You reduced that figure by 18% again, because of the decision not to go outside the State of Montana, right?

A Yes, sir.

Q And the reason, again, for that you wanted to use a percentage of the rail miles from Colstrip to the Montana border over the comparison of the rail miles from Colstrip to Spokane?

A Yes, sir, to determine the manpower the railroad would probably employ and where they live.

Q Without knowing, or without finding out what the actual crews would be, you used what you told me was an arbitrary figure?

A Yes, sir.

Q Based upon the geographic rail miles?

A Yes, sir.

Q Moving to paragraph (f), dividends, you have an average dividend on the stock of 6%, is that right?

A Yes, sir.

Q How did you get that figure?

A It was a reasonable figure to use to assume what dividends might be for additional stock sold.

Q Well, we're all reasonable people, Mr. Hofacker, so whatever reasonable people do is bound to be reasonable, but I'd appreciate it if you could be a little more specific for me as to how you determined that was a reasonable figure.

A Well, if you take the current price of our stock and take the dividend, it will be more than 6%. As we look out in time, we felt 6% was a reasonable number to use on the basis that that is about the return that we might expect on stock.

Q Did you make that determination, or did someone else make that determination?

A I would guess it was sort of a joint determination with several discussing what we ought to use for that number.

Q Who in the joint made the determination?

A Oh, I would guess probably there would be Don Gregg, Dick Davenport, I would have been involved, and it might even have involved (unintelligible).

Q And 17.8% assumed paid to Montana stockholders, who made that assumption?

A That's from the Montana Power Company's actual records from the Assistant Secretary as far as the stockholders in Montana.

Q Is that the number of stockholders?

A That's the percentage of the stock paid into Montana

stockholders, the percentage of ownership in Montana, yes, sir.

Q And that refers to people who have listed their address as a Montana address with the Secretary of State of the State of Montana, or with the corporate secretary of the Montana Power Company?

A If that's the way the address shows up as being in Montana, that must be the way. I don't know how this is arrived at. I assumed it was the address of the person who owned the stock.

Q Who had that record, the Montana corporate secretary, or the Secretary of State of the State of Montana?

A The Montana Power Company's secretary.

Q Why did you make the assumption in the third paragraph of number (f), of number 1, on page 5, that Burlington Northern would finance the rolling stock of 60% equity with 4.9% dividend yield to 1.2% Montana stockholders?

A That was taken from the Standard and Poor Stock Digest.

Q Of what year?

A I presume whatever is the current one, and I don't know what time of the year they come out, or how often they come out.

Q Is it your testimony that the most recent Standard and Poor Index was used to find that the rolling stock was 60% -- would be financed 60% with Burlington Northern equity?

A I would say that the Standard and Poor Digest used was the one we had on hand. If that was the most recent, I don't know.

Q Yes, but I'm trying to get to the point, Mr. Hofacker, with respect to the 60% equity of Burlington Northern. Is it your

testimony that the Standard and Poor'sDigest told you that Burlington Northern would finance the railroad rolling stock with 60% equity?

A This said what it was at the present time. We assumed future investments would be on a similar basis.

Q And Standard and Poor's, of the most recent vintage, told you a 4.9% dividend yield on Burlington Northern stock?

A That was the information from them.

Q And Standard and Poor's, also told you that 1.2% of the stockholders of Burlington Northern have addresses in the State of Montana?

A No, sir, that came through our Tax Department.

Q How did your Tax Department find out that 1.2% of the shareholders, in percentage, I assume, of their shares, of Burlington Northern had addresses in the State of Montana?

A I don't know.

Q Who, in the Tax Department, gave you that information?

A The Manager of the Tax Department, Chuck Gilder.

Q Now, in Roman numeral II, paragraph (a), page 5, you refer to percentages from the definitive estimate for units 1 and 2. What's that?

A That was an estimate made by Bechtel that went into specific estimates of completed costs of Colstrip units 1 and 2.

Q Does it have a date?

A I believe so, but I'm not aware of the date, sir.

Q Have you seen it?

A I have seen it.

Q Is it recent?

A No, sir.

Q When did you get it?

A I don't remember.

Q Within the last two years?

A It may have been, but I'm inclined to believe it may have been before that.

Q Was it before construction commenced on Colstrip 1 and 2?

A I don't believe it was before construction commenced. It was at a point at which a certain amount of the engineering had been completed.

Q When did construction commence on 1 and 2?

A I believe it was June of 19 -- oh, it could have been before June, but early '72, I believe, or '71. I think that's 1971 rather than 1972.

Q Using that definitive estimate, you assumed the material costs for units 3 and 4 at Colstrip would be 56% of the total plant investment, right?

A Yes, sir.

Q Who did that assuming?

A Mr. Davenport.

Q Did somebody guide his judgment on that, or was he simply using the mathematical relationship or proportion between the definitive estimate of 1 and 2 and some estimate for 3 and 4?

A I'm not clear in my mind how he got that 56%, but it was based on data from that definitive estimate plus, perhaps, other data or other conversations he had with other people.

Q And it says, the next sentence, that 16½% of the total plant investment would be assumed to be ordered through Montana

suppliers, but manufactured elsewhere, so a 5% commission on the 16½% of the 56% was used as a direct economic benefit to Montana, right?

A Yes.

Q Why did you assume that 16½% of the total plant investment would be ordered through Montana suppliers and manufactured elsewhere?

A In looking through the materials required in the plant construction, it would appear, again, this was a reasonable estimate of what might well be purchased through Montana suppliers.

Q Who did that estimating?

A Again, Mr. Davenport.

Q The last paragraph on page 5, there is a reference to the estimated construction cash flow. Is that the same cash flow as described earlier in this Exhibit No. 13?

A I believe it would be -- just a moment -- let me --

Q Dated April 8, 1975, referred to in the third paragraph of paragraph 1(a) on page 3?

A Yes, sir.

Q Who made the determination on page 6, paragraph (b), that 4% of the total transmission investment would be purchased in Montana?

A This, again, was a deduced or calculated number, based on experience along the lines that contractors bidding often include the factor of, like, 20% for fuel and miscellaneous supplies in their bids, and the assumption that perhaps 2/3rds of this would originate in Montana, so multiplying those two,

you'd come up with about 4%.

Q Two-thirds of 20%?

A Two-thirds of 20% of the amount of material that would be in the contractor's bid which is not 100% of his bid is that materials portion, materials and fuel portion of his bid.

Q And .9% of the investment, again, refers to the total transmission investment?

A Yes, sir.

Q And that's for material produced locally?

A Yes, sir.

Q Derived on the same basis?

A Yes, sir, it's an engineering judgment.

Q Mr. Davenport made those judgments?

A He did. I'd like to qualify. All of these judgments were consulted, resulted consultations with others, including myself, but he would devise, and then we tested as to whether it was a reasonable number or not.

Q If I asked you for the number, you couldn't give it to me, could you?

A What number, sir?

Q The numbers he has as a result of determining 4% of the total transmission investment costs?

A Did you say the numbers he used to determine the 4%, is that what you said?

Q Yes.

A No, I don't have those numbers.

Q He's the one who would have those numbers?

A Yes, he would.

Q The same thing would be true with the .9%?

A Yes.

Q And it's true, is it not, Mr. Hofacker, that the transmission line we are talking about for this particular study is the first 500-Kv transmission line that your company has had experience in building?

A Yes, sir.

Q Now, Item (c) refers to a 17% figure for the purchase by Burlington Northern of its fuel in Montana. How did you get that figure?

A I believe it was obtained by a telephone call by Mr. Davenport to some individual in the Burlington Northern.

Q Do you know who that individual was?

A I don't know him by name, but I would think it would be someone in the Billings office, of the Burlington Northern.

Q Then the statement is made that the supplies were limited by production and/or processing capabilities. Is that a Burlington Northern telephone call judgment, or is that a Montana Power Company - Davenport consulted judgment?

A I would think it was part of the same inquiry to the Burlington Northern.

Q The next figure is 26,200,000 gallons annually for hauling coal to Spokane, estimated by the D and R. Is that a reference to a figure used in the Environmental Impact Statement?

A Yes, sir.

Q Then, in the second paragraph of Item (c) on page 6, you say that you reduced consumption in later years in proportion to the decline in plant load factor. Who made that determination?

A He did.

Q Mr. Davenport?

A Yes, sir.

Q Turning to paragraph (d) on page 6, in the first paragraph, second sentence, fourth line, it says that it was assumed that the remaining wages represented one-third of the total cost of track and rolling stock, miscellaneous operation and maintenance. Who made that assumption?

A Mr. Davenport.

Q Did he make the next assumption, also, that materials, supplies, and miscellaneous expenses, would represent 20% of the resulting operation and maintenance costs?

A Yes, sir.

Q Going on to paragraph (e), page 7, under Roman Numeral II, I take it that the assumption that 55% of the Corette plant in Billings comes from maintenance costs consisting of materials, supplies and miscellaneous expenses is simply the other side of the coin from the earlier assumption made that 45% of the total operating and maintenance expenses at the Corette Plant were from labor?

A Yes, sir.

Q So the deduction of that amount, namely, 55%, would have been done in the same manner as the 45% calculation described earlier?

A Yes, sir.

Q Whose records were reviewed to show that 58.6% of those operating and maintenance costs, exclusive of fuel, are purchased in Montana?

A The Montana Power Company's records.

Q Where?

A The Accounting Department records.

Q Somebody in the Accounting Department furnished those to Mr. Davenport?

A I'm certain that they did.

Q And that's how it got done?

A Yes, sir.

Q You wouldn't know who that was in the Accounting Department?

A No, I don't.

Q And the reference to the 35% variable portion is the same figure that we saw before. Would your testimony be the same?

A Yes, sir.

Q Under Transmission Maintenance and Operation Materials, item (f) of Roman II, on page 7, you make a contrary assumption as compared to the one that you used for railroads, so that 75% of the materials discussed in that paragraph are assumed to be purchased in Montana. Why do you make that assumption?

A It's based on a previous record concerning purchases of hardware, insulators, conductors, and so forth, for transmission lines.

Q Having built 230-Kv and smaller lines?

A Yes, sir.

Q Wood poles as well as steel towers?

A Yes, sir.

Q The $213,000.00 per year figure is derived on the basis of the Accounting Department's records of what your expenses were in earlier transmission line building and the application of

the percentage figures that appear in paragraph (f)?

A Yes, sir.

Q And the computations were done by Mr. Davenport?

A They were.

Q Going to Roman III, page 6 -- page 7 -- paragraph (a), who made the determination to use the 3% Montana state tax?

A The final determination was probably by Mr. Davenport, consulting with our Tax Department.

Q Mr. Guilder, or somebody from the Accounting Department?

A I would think somebody from the Accounting Department, sir.

Q The plant ad valorem tax in 1980, I take it to be property tax information?

A Yes, sir.

MR. SHENKER: May I digress at this point, Mr. Davis. to point out that this is the property tax information that we have been requesting now for some ten weeks that Mr. Ross addressed himself to again this morning and that Mr. Gilder is supposed to be supplying. What he did supply for us is a rather broad sheet which we can make available to the Hearings Examiner for his calculations, but I think we're going to find it difficult to cross-examine this witness on this aspect of it, even if we could otherwise, which will be the conclusion of my voir dire examination, if we were relying upon the information that came from Mr. Gilder today through Mr. Ross.

HEARINGS EXAMINER: You want some additional tax information?

MR. SHENKER: Yes, we'd like to see the backup data for the ad valorem tax computations made, for example, with respect to page 7 of Exhibit No. 13, Item Roman III (b). That does not appear on Mr. Gilder's information supplied to us today through Mr. Ross.

HEARINGS EXAMINER: Did you get the information they wanted, Mr. Ross?

MR. ROSS: I understand that you wanted backup data on Mr. Gilder's calculations that were given to you this morning?

MR. SHENKER: A little more specific than that, John. We're looking at paragraph 3(b) on page 7 of Exhibit 13 of the applicants, and that's the backup data we're looking for particularly.

Q I take it, Mr. Hofacker, that you could not tell us the figure that Mr. Gilder or someone else in the Tax Department happened to use for the ad valorem tax computations?

A I cannot.

Q And the determination to be used on whatever that tax value is should be .9% of 1% of capital costs was a determination made by Mr. Gilder?

A Yes, sir.

Q And the determination, similarly in the next paragraph, to use 1.65% of capital costs was also a determination made by Mr. Gilder?

A Yes, sir.

MR. SHENKER: I would also need the backup data from Mr. Gilder with respect to paragraph (c) on page 7, the

next paragraph. One is the ad valorem tax on the plants and one is the ad valorem tax on the transmission lines and previews of coming attractions tell me that I'll probably want that for paragraph (d), which is the ad valorem tax on railroad rolling stock, but we'll see when we come to that one.

Q Turning to page 8, you used, I take it, the D & R estimate of capital costs for rolling stock in the D & R Environmental Impact Statement?

A Yes, sir.

Q And the tax rate that you applied to the resulting capital cost was based upon what is called here "current Burlington Northern statewide experience"?

A Yes, sir.

Q How was that experience obtained by you?

A I'm not certain, but I think probably through our Tax Department and his contracts.

Q Mr. Gilder again?

A Right.

Q Mr. Gilder doesn't keep Burlington Northern experience records in his files, does he?

A I don't think so.

Q He'd have to ask somebody at Burlington Northern?

A Probably.

Q You don't know who that might have been?

A No, sir.

Q The determination to apply ad valorem on depreciated value was made by whom?

A Mr. Davenport.

Q Then, on the corporate licensing tax, who made the determination to calculate on an OC-D basis, using the state tax rate of 6-3/4% and the federal rate of 48%?

A Mr. Davenport, probably, in consultation with Mr. Gilder.

Q Now, the information with respect to the interest paid on bonds, the percentage return on equity, the percentage debt ratio as to the lines and plants, I take it would be the same here as it would be with respect to Exhibit 12?

A Yes, sir.

Q For the railroad rolling stock financing, who made the determination to use 8% payment on bonds, 12% equity return, and 40% debt ratio?

A Again, Mr. Davenport referred to the Standard and Poor report.

Q The depreciation schedules, were these computed in the same way with respect to the first five items as was the case with respect to Exhibit 12?

A Yes, sir.

Q Who made the determination for depreciation schedules on railroad engines and railroad cars?

A It probably was made to Mr. Davenport by a Burlington Northern representative.

Q Personally, or by telephone?

A I don't know.

Q And you don't know who the Burlington Northern representative would have been?

A No, sir.

Q Turning to page 9, Mr. Hofacker, I take it that the figures on

that page are derived from only the material that appears on the first eight pages of Exhibit 3?

A Yes, sir.

Q And the rest of the material on page 9 would be arithmetic?

A Yes, sir.

Q The determination to use the 11.5% discount rate or factor, depending on how you look at it, would be the same with respect to Exhibit 13 as it was to Exhibit 12?

A Yes, sir.

Q And your testimony would be the same with respect to page 10 as it was to page 9?

A Yes, sir.

Q Then the final page, 11, I take it that that is a graphic and accurate representation of the material that appears on pages 9 and 10?

A Yes, it is.

MR. SHENKER: Thank you, Mr. Hofacker. Having completed that voir dire examination, Mr. Davis, I am guided by the Hearing Examiner's previous ruling. I think it was necessary for me to make the voir dire examination I did in any event for the record, but I believe that on the basis of the grounds that the Hearings Officer referred to with respect to the admission of Exhibit No. 12, it certainly doesn't qualify for Exhibit No. 13 for each of the following reasons: First, the deposition of Mr. Davenport was taken on April 17, 1975. He was not at that time evidently engaged in the final preparation of this report, and in the event, did not advert to it.

The deposition, secondly, of Mr. Hofacker, was taken on successive occasions during the months of March and April. He did mention that such a report was in the wings and we never had that document produced for us, which is understandable, because it is dated April 29, 1975. The document was first put into our hands on May 5, 1975. Therefore, and thirdly, it would have been impossible for us to examine any witness by discovery with respect to this Exhibit No. 13. Fourth, it was not until yesterday, some seven days after the commencement of this hearing, that we were told that Exhibit No. 13 is the document that we had been asking for for the last ten weeks. Therefore, even if, on May 5, 1975, we sought to depose somebody, we couldn't have had the information that this was the exhibit we had been seeking for ten weeks, notwithstanding the fact that we asked that question prior to May 5th and subsequent to May 5th and did not get the answer until yesterday. Fifth, it is apparent that any cross-examination of this document from this witness will require constant references to several parties, that is, individuals, who are not present in the courtroom, who are not on the witness list for the applicants, and some of whom are not even subject to the jurisdiction of the State of Montana and would require the issuance of subpoenas through commission and otherwise, if necessary, in order to find out the bases for the computations made. Sixth, it is clear, I believe, even under the rules under which we operate here, and the

grounds as stated by the Hearings Examiner previously under the model rules, and under relaxed rules of evidence, that telephone hearsay and documents that were inspected by individuals who prepared this document, who are not tendered as witnesses, is not the kind of evidence which should be given any kind of credence whatsoever even to the level of determining whether it should have weight. I appreciate that the Hearings Examiner addressed himself to the fact that various considerations that we presented with respect to Exhibit 12 could go to affecting the weight or credibility of that exhibit, but there is a point below which we cannot accept documentary evidence because it is inherently incredible and the weight of the evidence is so flimsy in fact, based upon the manner of its preparation and having been tendered, it should not be permitted to clutter the record. Therefore, we do believe that Exhibit No. 13 should be rejected. In final statement, I agree and disagree with the point made by Mr. Meloy with respect to Exhibit No. 12, in which he addressed himself to the crucial importance of the information. Because of the nature of the manner in which this information is prepared and presented in Exhibit No. 13, it hardly can be crucial, but it is the insinuation of that information, because of the labeling and the topic which is written at the top of Exhibit No, 13, that creates the appearance that it should be important or crucial information. It is not because it has been prepared in the manner to which I

have addressed myself, but it is that appearance which strikes me as one of impropriety and should not be condoned in this hearing at all.

HEARINGS EXAMINER: Mr. Warner?

MR. WARNER: I would just add one brief comment to Mr. Shenker's objection, and that is, that Section 82-4210 of the Administrative Procedure Code, subsection 3, does provide that a party shall have the right to conduct cross-examination required for a full and true disclosure of facts, including the right to cross-examine the author of any document prepared by or on behalf of or for the use of the agency and offered in evidence. We join in the objection on those grounds, and particularly upon the cross-examination grounds and the section of the Administrative Procedure Act.

HEARINGS EXAMINER: Mr. Meloy?

MR. MELOY: May I conduct just a few questions of Mr. Hofacker on voir dire, please?

HEARINGS EXAMINER: Yes.

CONTINUED EXAMINATION OF ROGER A. HOFACKER

Voir Dire by Northern Cheyenne Tribe, Inc.

By Mr. Meloy

Q Which of these items in Exhibit 13 did you personally calculate, Mr. Hofacker?

A I personally calculated none, but I checked the calculations of many.

Q That was going to be my next question. Which of these did you

participate in in the calculation of? I think you said that you were in on the discussions involving average dividends of your stock?

A Yes, sir.

Q Are there any others you participated in the calculation of?

A I was in on discussions as to what percentages to be used for materials in several instances. I questioned and received bases for his assumptions in other areas as to assessing the reasonableness of the assumption, to the best of my knowledge. I directed that the report be made and outlined those pertinent points that I thought should be included.

MR. MELOY: Mr. Davis, we would join in the objection on the same grounds as stated previously. Again, for Mr. Shenker's benefit, as well as for the record's benefit, it is the issue that is being addressed in these two exhibits that are of crucial importance. I was not lending any credence to the information contained in them. I was merely stating that since they address issues which will be determinative in this proceeding, it is absolutely necessary that the parties to this proceeding be given a chance to probe the accuracy of them. Mr. Shenker, in his voir dire, has indicated that in some instances -- in no instances -- did Mr. Hofacker himself calculate data included in these reports. In one instance he participated in the discussions involving assumptions but in some cases he could not tell us specifically who had calculated them, and in some cases, he admitted that he did not know who calculated them, and it would seem

virtually impossible for the truth to out in such a situation. I would therefore, as I said, participate in the objection to the introduction of this exhibit, and furthermore, I might as well state this objection because I assume that next Mr. Bellingham will proceed to interrogate Mr. Hofacker with regard to Exhibit 13. I would take this instance to object to any testimony that Mr. Hofacker might give with regard to the information contained in Exhibit 13 which he did not participate in the calculation of, and I would assume that based on the statute Mr. Warner cited, the Hearings Examiner would permit the parties to interrogate the authors of documents upon which certain of these assumptions and calculations were based.

HEARINGS EXAMINER: Mr. Brown?

MR. BROWN: My only comment, Mr. Davis, is our concern that the integrity of the record be preserved. It is not the intention of the Department of the Board of Health to become enmeshed in discussions of the need question, but we are concerned that the integrity of the record be preserved for the members of the Board of Natural Resources and Conservation, so from that standpoint, we do join in the objection.

HEARINGS EXAMINER: Anyone else?

MR. SHENKER: I should supplement my statement in this regard if I may, Mr. Hearings Examiner. First, I do regard this offer to be violative of the stipulation to which we referred yesterday with the members of the

Fish and Wildlife Federation when they sought to have a document introduced into evidence. Obviously, the author of that document was not here, and pursuant to that stipulation, the determination was made that the written document would have to abide the author's presence. It is apparent that the author of Exhibit No. 13 is, in most respects, Mr. Davenport. He is not here, either, and therefore it seems to me pursuant to our stipulation that the author of Exhibit 13 should abide the presence of Mr. Davenport. Secondly, for purposes of our future guidance, it seems to me that the offer of an exhibit of this kind should be clearly differentiated from the offer of an exhibit which contains data analyzed by subordinate personnel of a technical nature in a laboratory. For example, I assume that the applicants will call, as their witness list shows, meteorologists who would have to testify as to the analysis of reams of complicated data. No meteorologist actually did the analysis of all of that data, but the analysis was done by subordinate, clerical technical people under the direction and control of the particular witness who couldn't testify, and I did want to say for the purposes of our future guidance that I consider that to be a much different situation than this situation, in which it is the judgment of subordinate personnel that is permitted to come in under this exhibit without our opportunity to examine that judgment.

HEARINGS EXAMINER: Very well. The objection is overruled and the exhibit is admitted. You will all be

accorded the right of cross-examination.

MR. SHENKER: I assume we have a continuing objection to any questions with respect to Exhibit 13?

HEARINGS EXAMINER: You may have a continuing objection.

MR. WARNER: Mr. Davis, we would like a continuing objection.

HEARINGS EXAMINER: You will all have a continuing objection.

MR. SHENKER: I just had a discussion with Mr. Meloy. I think he makes a good point, that it would be appropriate for us to give notice at this time that we would intend to call such witnesses as Mr. Davenport as adverse witnesses in our case in chief, notwithstanding their absence from our witness list. If we are to get to the truth of the matter referred to in such exhibits as No. 13, we're going to have to hear from Mr. Davenport some time, and if we don't hear from him in the applicants' case in chief, presumably we'll have to hear from him in our case in chief, so we give that notice now.

MR. WARNER: Mr. Davis, we would join in that notice, with regard to Mr. Davenport, the gentleman from the -- the tax expert -- what's his name?

MR. SHENKER: Gilder.

MR. WARNER: Mr. Gilder, and of course, we object, and would like a continuing objection noted with regard to the competency of Mr. Hofacker testifying on Exhibit 13.

HEARINGS EXAMINER: It is my judgment that you have the right to call the adverse witnesses you mention and any others that may be involved.

MR. SHENKER: Thank you, Mr. Davis.

HEARINGS EXAMINER: Proceed.

CONTINUATION OF EXAMINATION OF ROGER A. HOFACKER

Direct, by Applicants (cont.)

By Mr. Bellingham

Q Mr. Hofacker, after that rather extensive examination, I don't think that we will need to go into the detail originally intended as far as Exhibit 13 is concerned, but I would like to go back and make certain that we're on the same common ground as far as this particular exhibit is concerned and the extent of it. It uses, as you indicated before, and I briefly summarized, three main criteria. Am I correct in that?

A Yes, sir.

Q And those three criteria are stated under the summary that appears on page 1?

A Yes, sir.

Q And those three criteria are what?

A Personal income after taxes, materials and supplies purchased in Montana, and the state tax revenues.

Q These three items were then analyzed and combined to determine what?

A The total economic benefits to the State of Montana.

Q The total economic benefits to the State of Montana of two alternatives?

A Yes, sir.

Q And these alternatives, I think you've indicated before, are predicated upon what?

A The installation of Colstrip 3 and 4 in Montana versus installation of a similar plant west of Montana with coal traveling from Colstrip across western Montana.

Q Taking up quickly the summary of these three criteria, at page 1 appears the personal income data. Am I right on that?

A Yes, sir.

Q Would you briefly and generally state what was included in that?

A It's the wages paid employees, both on the permanent jobs and those secondary jobs developed as a result of the permanent jobs, both for transmission and plant installation, as well as the railroad transportation of coal in lieu of the generation installation in Montana. Federal taxes were removed from those wages because it was assumed they would not be available as money in Montana, the wages for both the construction as well as the permanent jobs. It also includes dividends on the capital financing.

Q Have you covered all the items on what personal income includes?

A I believe so. Well, operation and maintenance of the transmission lines -- I assumed that would be included when I said installation of transmission.

Q As far as materials and supplies, we find that at the top of page 2, is that correct?

A Yes, sir.

Q Would you briefly indicate what that includes?

A Well, there are certain materials and supplies, such as fuel required to operate and maintain both the transmission and the railway, installation -- some of those materials would be purchased in Montana, construction materials, some of them would be purchased through Montana suppliers or actually purchased from fabricators in Montana. We also included the Diesel fuel necessary for the coal shipment, that portion that would be purchased within Montana.

Q Have you covered generally the materials and supplies category or criteria?

A Yes, sir, the four as outlined there.

Q The third criteria was the state tax revenue, isn't that right?

A Yes, sir.

Q And those are generalized at page 2?

A Yes, sir.

Q Will you describe them generally?

A They include the personal income tax paid by wage earners, the ad valorem tax on the plants, lines and railroad rolling stock operating in Montana and the state Corporation License Tax paid by the Montana Power Company on its share of the capital financing of fence and lines and similarly by the railroads on their financing of rolling stock.

Q You have at page 3 and the pages immediately following that up to and including page 8, backup data, but you go into more detail on the items you previously testified to, is that right?

A Yes, sir.

Q I would like to clear up a few of these items. If you will

take a look at page 3, Roman Numeral I, subparagraph a, plant construction wages, it is stated there the total wages were determined from Bechtel's trend base estimate, and you indicated that you thought that date involved July 26, 1974, am I correct in that?

A Yes, sir.

Q Do you know whether or not that is the latest Bechtel's trend base estimate?

A That's the trend basis estimate that we have received from them for the construction of these plants.

Q You don't know of any later one?

A No, sir.

Q You indicated on the second line of that particular portion previously referred to that you used a figure of 11,980,000 man-hours?

A Yes, sir.

Q What did you mean by that?

A That that was Bechtel's best estimate of the man-hours required to construct this project.

Q And did it look like a reasonable figure?

A It did, yes, sir, when we compared it with construction of units 1 and 2.

Q If you go further in that paragraph, the statement is made, "These wages were then escalated at 6% per year to the 1978 center of gravity." Do you recall that?

A Yes, sir.

Q And you were interrogated as to what was meant relative to center of gravity, and so forth, and the question was asked,

something to the effect whether or not after 1978, any escalation rate was used directly, or something to that effect. Do you recall that?

A Yes, sir.

Q And your answer was no as far as any escalation rate being directly used after 1978, but as far as any escalation rate is concerned for the years '78 and thereafter, was any time consideration included in the estimate relative to those particular years?

A Yes, sir, it was accounted for by the manner in which we calculated this escalation. We took the total number of man-hours to complete the project and escalated those at 6% for the wages up to the center of gravity. Now, that would mean that for some of those earlier labor hours paid for was at less than that number would be, and some would have been more at a later date, but it comes out, it balances out, by taking the center of gravity method for the total man-hours.

Q This is a mathematical device in order to come up with a particular result?

A Yes, sir.

Q Why is it used?

A It's a simplification that comes up with the same answer.

Q Have you used this center of gravity approach in other computations previously made?

A We have, and it is generally used in the industry.

Q Is it your personal experience that it has been found to be accurate?

A As accurate as you can estimate, yes, sir.

Q Turning to page 4, subsection (c), I do not think you testified relative to the number of workers involved, did you?

A I did not.

Q And I do not think the figure is set forth?

A I don't see it in there, no, sir.

Q Do you know the number of workers that were involved in that particular analysis?

A Ninety-nine men for the plant, permanent for the plant.

Q Calling your attention to subparagraph (d) at page 4, I do not believe you testified relative to the number of workers involved in the transmission operation and maintenance, correct?

A That's right.

Q Do you know the number of workers involved?

A Twenty-nine is the number.

Q Now, then, turning to page 9 of Exhibit 13, we have there the heading, "Economic impact Units 3 and 4 at Colstrip 500 Kv transmission," is that correct?

A Yes, sir.

Q This refers to one of the alternatives, am I correct?

A Yes, sir.

Q Now, then, moving down the page, you have the three items that you previously testified to as being involved in this summary, being headlined, are they not?

A Yes, sir.

Q And what is the first one?

A Personal income and materials and supplies are combined in the first two columns.

Q Now, under that you have a series of years from 1975 to 2016, am I correct on that?

A Will you restate that, please?

Q You have a series of years on the left-hand side from 1975 to the year 2016?

A Yes, sir.

Q That is a total of how many years?

A Forty-two years.

Q And what is that made up of?

A Of the construction that would be going on, starting in 1975 until the end of the 37-year nominal life for Colstrip units 3 and 4.

Q So you do have five years covering the period 1975 to 1980 and an additional 37 years covering the expected life of the plant, totaling 42 years?

A Yes, sir.

Q I'm calling your attention once again to page 9. You have under the heading, "Personal Income, Materials and Supplies," for the year 1975, a figure as far as generation is concerned of what?

A $1,674,000.00.

Q To each one of these figures have to be added an additional three zeros, is that correct?

A Yes, sir, as indicated at the top of the tabulation.

Q And again calling your attention to 1975, you have a 500 KV transmission figure of how much?

A $3,169,000.00.

Q Now we go on to the next column, Tax Revenues to the State,

and here again you have it subdivided into generation, 500 Kv transmission, do you not?

A Yes, sir.

Q For the year 1975, for example, what figure do you have relative to generation?

A $56,000.00.

Q And what about 500 KV transmission?

A $71,000.00.

Q And in the next column there is a total. Is that found by the addition of the previous four figures?

A Yes, sir.

Q And the total here is how much?

A $4,970,000.00.

Q Now, the next column, there is a present worth figure of 11.5%?

A Yes, sir.

Q Would your analysis of that be the same as the present worth figure that you testified to at pages 5 and 6 previously in Exhibit 12?

A Yes, sir.

Q And the present worth figure of the year 1975 is what?

A $4,457,000.00.

Q Then I notice in the lower right-hand corner, you have totaled those up in two columns, total and present worth, is that correct?

A Yes, sir.

Q And you have a levelized figure, also?

A I do.

Q And I assume that your interpretation of those particular figures would be the same as similar figures in Exhibit 12?

A Yes, sir.

Q Turn the page, if you will, to page 10 of this particular exhibit, and what do we have here?

A This is the economic impact of units such as 3 and 4 being located outside the State of Montana, and coal being shipped by rail through Montana.

Q Now this is an extension of the figures to the other alternative, is that correct?

A Yes, sir.

Q And you testified to one of the alternatives, found on page 9, and this is the remaining alternative, found on page 10?

A Yes, sir.

Q And here again, you have subdivided the various figures into the same sections that appear on the previous page, haven't you?

A Yes, sir.

Q And personal income, materials and supplies, I notice for the year 1975, as far as coal shipments are concerned, is zero?

A Right, sir.

Q And why is that?

A No coal would be shipped. The plants wouldn't be needing coal.

Q You do have a figure as far as the 230 KV transmission is concerned of what?

A $3,169,000.00.

Q Moving over to tax revenues to the state as far as coal

shipment is concerned, you have a figure of zero there for the same reasons as before, I assume?

A Yes, sir.

Q And the 230 Kv transmission revenue to the state is figured as what?

A $71,000.00.

Q And you have a total there just as you did in the previous one, and that's the sum of the previous four figures, is that correct?

A Yes, sir.

Q And the present worth over in the right-hand column?

A Yes, sir.

Q And down at the bottom you have tabulated the totals and have also a levelized figure, am I correct?

A Yes, sir.

Q Now, turning back to the first page, near the top, have you placed the figures that are contained in pages 9 and 10 that you have just testified to in a tabular form at the top of that particular page?

A Yes, sir, the totals.

Q You tabulated the totals at that point?

A Yes, sir.

Q Now, I notice that you've rounded off the figures, have you not?

A Yes, sir.

Q Taking up the first alternative, plants at Colstrip, 500 Kv transmission, you have a 42-year total of what?

A $1,534,000.00.

Q And what does that particular figure represent?

A That's the total economic benefits as described, to the State of Montana, over the 42-year period.

Q Now, then, taking up the next alternative, at the top of page 1 you have plants outside the state, rail shipments of coal, and what is the total of that?

A $1,132,000,000.00.

Q Now those two figures that you previously testified to are found in the tables appearing at pages 9 and 10, correct?

A Yes, sir, with the rounding that you referred to.

Q Now, on the right-hand side, you have a column marked "Difference" there, is that correct?

A Yes, sir.

Q And the figure there is what?

A $402,000,000.00.

Q What alternative does that particular figure favor?

A The plants at Colstrip with the associated 500 Kv transmission.

Q And you found that figure by subtracting the other alternative from the one you just mentioned?

A Yes, sir.

Q Now, when we come to levelized annual benefits, that's the next section that you have there, and plants at Colstrip, 500 Kv transmission, you have a figure there of how much?

A $27,000,000.00.

Q And plants outside the state and rail shipment of coal, the figure is what?

A $14,200,000.00.

Q And are those figures obtained from the tables appearing in

pages 9 and 10?

A Yes, sir.

Q And these are annual benefits, are they?

A They are.

Q Now, then, you have a difference figure there on the right-hand side of how much?

A A difference of $12,800,000.00 per year.

Q And which of the two alternatives does that particular figure favor?

A Again, the plants at Colstrip with 500 KV transmission associated therewith.

Q Now, then, calling your attention to page 11 of Exhibit 13, you have a graph of some kind there, do you not?

A Yes, sir.

Q And what is involved?

A That is a graphic representation of the tabulations appearing on pages 9 and 10 of the costs of the two alternatives that the study was concerned with.

Q At the bottom of the page, you have what?

A The years indicated, 1975 through 2016.

Q And on the left you have what designated?

A The millions of dollars that you use as a reference for values on the curves as shown there.

Q You have two lines extending across the page. One is a black solid line, and that represents what?

A That represents the economic benefits from the coal shipment westward through Montana.

Q And above that you have another black, dotted line, do you not?

A Yes, sir.

Q What does that represent?

A The economic benefits to the state for the plants 3 and 4 installed at Colstrip and the associated 500 Kv transmission.

Q The dotted line appears above the solid line in all cases, doesn't it?

A Yes, sir.

Q What does that indicate?

A It indicates that there are more economic advantages realized within the State of Montana from the plants being at Colstrip and the installation of the 500 Kv transmission than if the plants are located outside of Montana to the west, and coal was shipped through Montana in a westward direction.

Q Now, I'd like to call your attention to the dotted line appearing at the top of that particular graph. I notice a very sharp upturn in that dotted line following the year 1970 and then a sharp downturn. Will you explain that, please?

A That year it starts at is 1975, by the way, sir. It represents the construction period of the transmission and the generation and the wages, taxes, and associated economic benefits related thereto.

Q Then, when the line levels out, as it does, after it falls from the peak, what is the reason for the leveling?

A Thereafter, it's the plant construction and the transmission line construction have ceased, so then you have only the permanent jobs for the generation and transmission plus the income taxes and maintenance materials and supplies that are needed in the operation of the system.

Q Is there anything else concerning this particular exhibit about which you would like to testify that has not been covered?

A I can think of none.

MR. BELLINGHAM: Sir, I am going to move on to another field entirely. I can get it started if you want me to at this time.

HEARINGS EXAMINER: It's just a few minutes before five, so we will recess until 9:00 tomorrow morning.

(Recess 5:00 P.M.)

SECTION 10

Heating Systems: Conventional and Solar (Monitoring)